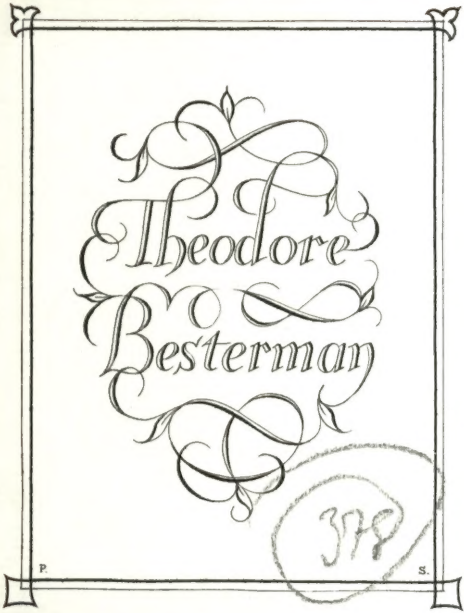
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[White (Gilbert)]

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Art's Master-Piece:
OR,
A Companion for the Ingenious of either SEX.

In Two Parts.

I. The Art of Limning and Painting in Oil, &c. In all Particulars, *viz.* Drawing and Painting Faces, Bodies, Garments, Landskip, Preparing and laying on Colours; also colouring Mezzo-tinto Prints, Gilding on Wood, Metals and Leather. The newest Experiment in Japaning, to imitate the Indian way, Plain and in Speckles, Rock-work, Figures, &c. Receipts for making the several sorts of Varnishes, Colours, &c. To make Artificial Tortoise-shell, to Dye or Stain Ivory, Horn, Bone, Bristles, Feathers, and sundry sorts of Woods for Cabinets. The Mystery of Dying Silks, Stuffs, Woollen and Linen Cloth. To take Spots, Stains, Pitch, Tar and Iron moulds out of Silk-Stuff, Linen and Woollen, and to recover faded Silks Linen, &c. The Art of Perfuming and Beautifying Divers Physical and Chirurgical Receipts. To make *London* Powder-Ink, other Powder Inks, and the shining Japan-Ink With many other Notable things

II. The Art of making Glass of Chrystal, of all sorts and Colours, and to prepare the Materials. To make Glass of Lead of many beautiful Colours. To make Enamel of divers Colours, for Gold, Silver, or other Metals. To make Chalcedony, like Jaspar and other Lucid Stones, &c. and to prepare Materials for the Work. To make Artificial Precious Stones in equal Beauty to the true; and to colour Globes of Glass on the inside. The Art of Painting Glass in Oil and Annealing and burning on the Colour. The Art of Gilding divers sorts of Metals. Instructions to cast Figures in Wax, Plaister, purest Metals, &c. Leaves, Flowers, Medals, and other Matters worthy of Note.

To which are added many Curiosities and rare Secrets, known to few and highly profitable and pleasant.

The Second Edition. By C. R.

London, Printed for *G. Conyers* at the *Golden Ring*, and *J. Sprint* at the *Blue Bell* in *Little-Britain*.

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THE EPISTLE TO THE READER.

Kind Reader,

I *Think I need make no long Apology for this Book, since the Title is sufficient to recommend it to the perusal of the Ingenious, though it contains but hints of what in larger Variety of curious Things, are more copiously inserted for the Accommodation of Young Gentlemen, Gentlewomen, and others, done with that Care and Exactness, in all the many particulars, that without vain glory, I may presume to say, that this, nor former Ages have not produced of these kinds any thing so curious and compact.*

It carries with it all along as linked in a Chain, Pleasure and Profit, and cannot

but be grateful to the Fancies, especially of the younger sort, who putting in practice what best suits their Minds, may much please others and accomplish themselves.

As for Limning or Painting, it has always been in high Esteem with the greatest and most Honourable Persons in the World, and is an Innocent and Diverting Recreation. Japanning I confess is not so Ancient, especially in these parts of the Globe, therefore to be esteemed as (indeed it is) the more Rare and Considerable; as for the rest too tedious to enumerate in a short Epistle, though some of them have been long in use, Time and Industry have better improved them to Advantage, such as are Industrious to imploy their Talents for the good of themselves and others: And so the whole Work not comprehending many Sheets, I shall omit what more I justly might say, and submitting to the Censure of the Candid and Ingenious Reader, take leave to subscribe my self,

Your most Humble

Servant,

C. K.

THE Curious ART OF DRAWING, AND Preparing for Limning and Painting in OIL, &c.

The Introduction to the Practice, in some Things necessary to be provided for the proceeding in this Art.

THE curious Art of Limning or Painting in Oil, has in all Ages been wonderfully admired and approved, as the Master-piece of other Arts and Sciences, wherein Art so exactly imitates Nature, that Motion only seems to be wanting; and many such rare Pieces have been Drawn, that they have at the first blush deceived the Eyes of the Curious, who

have taken them for real Living Beings, and tho' the Eye and Hand are mainly required herein, the one to direct, and the other to operate, yet the Mind or Imagination must furnish out a great part of the curiosity, having Idea's or the true Shape of things always in a readiness.

This cannot be done hastily, but must be done by a steady Practice and curious Observations, and the first in this Undertaking, is to prepare your self with suitable materials, and amongst others, French Chalk red and white, that it may be cut into curious taper Pencils, to draw the out strokes of any Figure you design, Sallow-wood so burnt that you may do the like by it, and if these strokes hit not at first to due proportion, they may be rubbed out with the Feather of a Mallard's Wing, and so till you find them right, then go over your Strokes with a strong well pointed Pencil, either of red or black Lead: To make the Impression more even and regular, it will be proper to have Pens made of Raven or Crow Quils to finish the finer Strokes, also a Rule and Compass with Three feet, to take in and out at the Points as you have occasion, the one of white or red Chalk, the other of Black Lead, and a Third of any other Pastile, and these in most Drawings are proper to mark out equal distances after the drawing of the Out-strokes; there are other things required, which in their proper Place I shall speak of.

Being thus far entred, come a little nearer to the Practice, and make your entrance on it with plain Geometrical Figures, such as are the Circle, Square, Oval, Cone, Triangle, Cylinder, which

which at first use your self to mark out with your Rule and Compass, till you can readily do it with your Hand, and these will much assist you in the beginning of this curious undertaking, the Circle well made, will direct you in Orbicular forms, as the Globe of the Earth, Spherical World, Moon, Sun, and the like; is very proper in confining the Picture you are to Copy; the Oval gives you Directions for the Mouth and Face, the Foot of a Wine-glass, the Mouth of a Well, and the like: The Cone assists in Drawing Columns, Spires, top of Towers, Steeples, *&c.* The Triangle is of admirable use in making the half Face; the Cylinder gives you assistance in drawing Columns, Pillars, Pilasters, and other things belonging to Architecture; the Poligon may be also used for Ground Plats, Fortifications, *&c.* and Angles and Arches in Prospective.

These things premised, try to Draw several sorts of Fruits and Flowers, as Grapes, Cherries, Peaches, Apples, Apricots, Tulips, Pinks, *&c.* also Insects, Trees, Branches, and the like, and from these proceed to practice on Birds, Beasts, *&c* consider well their proportion, colour, flowness, swiftness, fierceness, and many other things natural to them, and the better at first, till your Mind can well frame such Ideas, it will be proper to have good Drawings to imitate; and so go on by degrees to other things, as Fish, Mellons, Roots, Oranges, *&c.* and by no means mistake their sutable lively colours, nor proper form, and then you may

venture on Humane Faces and Bodies, wherein lies the excellency of this Art.

Of Drawing Faces, &c.

When you come to Draw a Face, you must well weigh and consider in what posture it must be done, whether side-ways, upward, forward, or downward, touching lightly the Features, where the Nose, Eyes, Mouth and Chin ought to stand, then go more perfectly over them, for the Circles, Squares, and Triangles used in this matter, may sufficiently guide you where the Nose, Eyes, Mouth and Chin should stand; but in taking the Features, observe with a stedfast Eye, the principal Muscles in the Face, which in persons of years appear very much, and there is usually to be observed a threefold proportion in a Face, as in the first place, from the top of the Forehead to the Eye-brows, in the second place, from thence to the bottom of the Nose, and lastly, from thence to the bottom of the Chin, observing in this case a due proportion in the length of the Forehead and Nose.

In a full Face, the distance between the Eye-brows, consists of the length of one Eye. but where there is a side, or three quarters Face, the distance must be lessened answerable to the proportion, the Nostrils must be placed directly against the nether corner of the Eyes, and if the Face you draw be Plump, or Fat, the Cheeks must swell; but consider, in a Lean Face, the Jaw-bones stick out, and the Cheeks fall somewhat in.

In

In a ſmiling Countenance, the Corners of the Mouth turn ſomewhat upwards, and in a ſour frowning Countenance, the Forehead is bending, and Wrinkles appear on the upper part of the Noſe.

In Drawing a fore-right Face, you muſt make a perfect Oval, divided by two Lines into three equal proportions, in the firſt part place the Eyes, in the ſecond the Noſtrils, and in the third the Mouth, keeping the Eyes an equal diſtance from each other.

In Drawing an upright Head, you muſt make it in equal diviſions, with three Lines every way, either upwards, downwards, higher or lower, divided as the former.

To Draw the ſhortned or enclining Face, obſerve how the Lines agree, and ſo in their proper places you may Draw the Mouth and Noſe, and the reſt of the parts after you have brought your hand a little into practice; and note, whatſoever proportion the Face bears, your out-ſtrokes muſt be formed accordingly.

As for the Noſe, you muſt among other things, particularly obſerve the roundneſs, hollowneſs, and Indentings of the Noſtrils.

As for the Hands, their Poſtures are various, but a true meaſure muſt be obſerved in it, according to the proportion you draw, as likewiſe the Arms, as far as they appear bare, then proceed to Draw the Feet with meaſure and without, but for theſe it will be requiſite to get Drawings to practice on at firſt, then practice Drawing Feet and Legs conjunct or ſeparate, and proceeding from the Members, draw the other

other parts of the body, and practice first on a Child, wherein there is more ease, because they are of a Fairer and Plumper Face and Body, the Sinews, Lines and Muscles, not appearing as in Men and Women.

In Drawing, begin at the Head, and so proceed by degrees to the Feet, running it lightly over at the first, and as you see occasion, encrease the fulness, let the parallel Joints and Sinews be equally proportioned, as also the Muscles, and their Attendants, and exactly opposite, and the Motions of the Body be answerable to each other, and the Limbs a true Symetry, one not being larger than the other, nor longer where Nature requires it not.

In Shadowing, observe to cast them ever one way, as in the figure of a Woman, if you begin the Shadow at the left Cheek, you must continue the like on the left side the Neck, Body, and all other parts, unless the Light side of it requires to be dark, by reason some other Body standing between the light and it, as put the case three Men stand together, the middle Figure must be darkened by the foremost, unless the light by facing it comes between them.

Observe, that all Shadows, the further off they are, grow fainter, and circular Bodies must have a circular Shadow, according to the light that makes it.

In Drawing a Figure standing, Draw that Leg the Body stands firm upon, strait and steady, or else the Figure will seem to decline, as if it were falling.

As in naked Figures, the out-lines are required to be Drawn firſt, ſo do it in Drapery or Clothing, leaving ſpaces within for your greater or leſſer Folds, and break them into leſſer, that may be contained within them, and the cloſer the Garment ſits to the Body, the ſmaller and narrower muſt be the Folds, and in Shadowing the Innermoſt, it muſt be the harder, and the outermoſt the ſofter, continue the great Folds, but as for the leſſer, break them off where occaſion requires it; and the finer the Drapery is, the finer and ſharper muſt the Folds be, and the Shadow the ſtronger and finer to the Eye, always obſerving, that the Garment that ſits cloſe, as the Body Coat of a Man, or Breaſts of a Woman, and the like, require no Folding, but rather with a ſweet Shadow repreſent that part of the Body, that the Garment appears to cover, as Womens Breaſts with a ſweet round Shadow, and the like.

Of Colours uſeful in Limning or Painting, and other matters.

The next thing to be conſidered, the Cloth primed, and the Drawing put on, is the preparing your Colours, which in Oil Painting muſt be with Linſeed Oil, unleſs for Linen, and then Walnut is a great deal better, for it will not turn yellow as the other in time will, when mixed with curious white.

You muſt Grind your Colours on a Stone with a Muller, till they are as fine as Butter, *&c.* The Colours proper to be uſed in Limning are, The

The Blacks; Sea-cole black, Ivory black Lamp black, and Earth of Collen; the White, White-Lead; the Green, Terravet, Verditer and Verdigreace; the Yellow, Spruce Oaker, Pink or Piement, and Maſticot; the Blues, Smalt, Biſs, Indico, and Ultramarine; the Reds, Red-Lead, Vermillion, Lake, Indian-red, and Ornatto; the Colours indifferent are Umber, Spaniſh brown, burnt Spruce.

Theſe are the chief to be laid in Oil, but Ivory, Spruce-Oaker and Umber muſt be burnt before they are ground; and as for Maſticot, Ultramarine Maſticot, Vermillion, Smalt and Orpiment, you may temper them on your Pallate without grinding, though grinding is better, becauſe it mixes them the better with the Oil, and makes them dilate and ſpread more eaſily: And what of theſe are to be burnt, perform it in a Crucible, taking care they be not overburnt, to loſe their Tincture.

Take care in the next place to get good Pencils of all ſizes, proportionable to your Work, a Palate or Board to lay Colours on whilſt you are uſing them, an Eaſle to place your Cloth upon or againſt, and a ſtraining Frame, to which it muſt be nailed, a Moll ſtick or Stay, made of Braſil, or ſome ponderous Wood, not ſubject to bend, about a yard long, at one end tye a Ball of ravelled Cotton, with a Leather over it, ſo that with your Left hand, holding it againſt the Work, you may ſupport your right Arm with it, whilſt you are Working.

Of

Of Mixing or Tempering of Colours.

To make a Violet colour, take Indico, White Lead, and Lake, mix them well, and the more or leſs of each quantity, will make it deeper or lighter.

A Lead colour make of White and Indico, well mixed and tempered together.

For a Scarlet colour, take Lake, Red-Lead, and a ſmall quantity of Vermillion.

For a Flame colour, take Red-Lead and Maſticot heightened with white.

For a Light green, take Pink and Smalt, and as you ſee occaſion lighten it with white.

For a Purple colour, take Spaniſh brown, Indico, and white, well tempered together.

For a Bay colour, mix Spaniſh brown and white.

For a Murrey colour, mix Lake and White; and ſo by often tempering Colours, and Practice, you may find out the reſt.

Of the firſt Operation or Sitting.

Having thus far proceeded, it will be time to begin your Work, and having laid your Ground for the general Complexion, and Drawn the Out-Lines, which you muſt do with Lake and White mingled, Drawing very faintly, that if there be any fault it may be rubbed out and amended; the proportion of the Face Drawn, add to the former colour a ſmall proportion of Red-Lead, tempering it faintly to the colour of the

the Cheeks and Lips, the tip of the Chin and Ears, about the Eyes and Roots of the Hair, placing red Shadows, and the Shadows must not be put in with the flat of the Pencil, but with small touches, after the manner of hatching, and in this wise go over the Face, and cover the Ground-work, with these and the like shadows, but in the dead Colours your Curiosity need not be great, only strive as near as you can to imitate Nature, for the roughness of the Colours may be mended at the second Operation.

Having duly placed and proportion'd your red Shadows, proceed to put your faint blue Shadows about the Corners of the Eyes and Balls, *&c.* and the greyish blue under the Eyes, and about the Temples. working them sweetly and faintly over, by d grees, beginning the Shadow as the Light falls, as likewise the hard Shadows on the dark side of the Face, under the Eye-brows Chin. Nose and Neck, with strong touches on those places, so pass to the light side of the Face, and bring all your Work together to an equal roundness; yet at this time give not perfection to any particular part, but well view the Work, and consider how near you come to the Life, not only in likeness, but posture, colouring. *&c.*

Having now wrought the faint Shadows into the red Shadows, you may take a touch at the Hair, disposing it in such Curls, Folds, *&c.* as best contribute to Grace and Ornament, only drawing it with Colours sutable to the Life, and deepen it somewhat more strongly in the deepest

deepeſt ſhadowed places, and ſo deſiſt from your firſt Operation.

Of the ſecond Sitting or Operation.

The Party to be drawn in this ſecond Sitting, muſt take the place and poſture as before, and now you muſt take a more curious ſurvey of the Lines and Features, and as you drew them over roughly before, now is the proper time to ſweeten them with the ſame Colours, by Working and Drawing them one into another, ſo that no rough edge or lump of Colour may appear, and you muſt do this with a Pencil ſharper than the former, to render the Shadow ſmooth and ſoft.

This done, proceed to the Back-ſide of your Picture, and if there be a Curtain required, and it be ſuppoſed of blue Satten, then temper Bice with your Oil, and draw the out lines of the Curtain, as alſo your Picture, and lay it over very thin and airy with a large Pencil, that it may be the whole ground, intended to be done with Blue, and then lay it over again with a ſubſtantial Body, with the ſame Colour, doing it ſwiftly that no part of the Colour may dry before it be all finiſhed, and in the ſame manner you may lay the backſide with any Colour.

This done, lay your Linen of a fair white, and your Drapery flat, with the Colour you intend it, then view the Face again well, noting what Shadows are too light or too deep, and labour to reduce the ſeveral ſhadows to their perfection,

perfection, then draw the Lines out of the Eye lids, and Shadow the entrance into the Ears, the deepneſs of the Eye-brows, and all the moſt material Marks and Notes in the Face, do this with a curious ſharp Pencil, then heighten the Hair, deepening it as it appears in the Life, caſting over the ground ſome looſe Hairs, which will not only make it look airy, but ſeem as if the Picture ſtood a diſtance from the Curtain.

In ſhadowing the Lines, which muſt be done curiouſly, uſe black, white, and a little blue, deepen the black with Ivory-black, and put to it a little quantity of Indico or Lake, and ſo the ſecond Operation is finiſhed.

The third Sitting or Operation.

Herein where you find any defect, or judge it reaſonable, you muſt give ſtrong touches, taking curious heed for the rounding of the Face, which will now be better accompliſhed than before, obſerving diligently what yet may conduce to ſimilitude, as Moles, Scars, Caſts with the Eyes, drawing of the Mouth, and the like.

For Garments or Ornaments, the Ground for Blue being laid with Bice, the deepening muſt be Indico, and a little Lake, the lightening white, very fine, faint and fair, and for the greater Ornament, the Light may be mixed with Silver or Gold, but of Drapery more particularly in Mezzotinto Painting, for Pearl Colour the Ground muſt be White and Indico, and the Shadow Pink and Black; if the Body requires

quires to be in Armour, let Leaf Silver be the Ground, and when it is well dried and burnished, work the Shadow with Silver, Umber and Indico, and the Shadow on the Silver as the Life directs.

For Gold Armour, lay Shell-Gold for the Ground, or Liquid Gold, and shadow it with Lake, English Oaker, and a mixture of Gold.

For Drawing a Fair Complexion.

To do this, make a mixture of a small quantity of White, and twice as much Lake and Vermillion, temper them well with the flat of a Knife upon the Pallat, and let it be used as the deepest Carnation in the Face, then adding a little part more of White, reserve that for a lighter Carnation, and yet a third part being reserved, add more White to it till it comes to the lightest colour in the Face, and so proceed to prepare the faint shadows.

In doing this, take Smalt, and mix it with a little White, which may conveniently serve for the Eyes, then separate the greatest quantity, and add to the rest a little Pink, and these well tempered will be sufficient for the greenish shadows in the Face, then proceed to prepare your deep shadows, do it with Pink, Ivory-black and Lake, a like quantity of each, temper them well together, and if the Complexion you draw, requires redder shadows, add more Lake; if bluer or greyer, more Black, if yellower, more Pink.

Having prepared your Pallat with suitable Colours for a fair Face, consider again what other

other Colours are required; if the Complexion be more Brown or Swarthy, and in such cases temper the Colours as before, putting a little quantity of burnt Oaker amongst the Lake, and Vermillion and White, that it may amongst your heightened Colours appear Tawny; and in this case, temper so much Oaker as will just turn it; and for your very deep, and very faint Shadows, use the same as for the former Complexion.

For a Tawny Complexion use the same as before, however, prepare the Shadows, of burnt Oaker and Umber.

For a very black or dark Complexion, prepare the Shadows as the foregoing, but as for your lightening, take Lake, burnt Oaker, with White and Black, however, but a little of the White must be put in at first, that by degrees it may be the better worked up, and observe that the single Shadows laid at first upon your Palate, and well tempered according to the foregoing directions, serve as Shadows for all Complexions.

Further Directions for Colouring Garments, &c.

These Garments, or Drapery, require to be made suitable in their Colours; for Red therefore, lay the Ground with Vermillion glaze it over with Lake, and heighten it with White.

For Scarlet, let Vermillion be the lightest, deepened with Lake, and heightened with Indian red.

For

For Crimſom Velvet, lay a Ground of burnt Oaker, Vermillion and Indian Red, glaze it with Lake, and touch it up with Vermillion.

For a ſad Red, heighten Indian Red with White, and deepen with Black, Pink and Lake, well mixed together.

For Green, heighten Bice and Pink with Maſticot, and deepen it with Pink and Indico.

For Green Velvet, lay the dead colour with a little White and Lamp-black, glaze it with Verdigreaſe, deepen with Pink and Indico, and heighten with White and Pink.

For Yellow, uſe Maſticot, Umber and Yellow Oaker, lay the dead colour with Maſticot and White in the higheſt places, and with Oaker in the meaneſt, in the darkeſt with Umber, glazing when dry with Pink.

For Blue Garments, take Indico and White, firſt laying the White in its due place, and then your mean colour, *viz*, Indico and White, well tempered in their proper places, then deepen with Indico, and when dry, glaze it with Ultramarine.

For Black Garments, let the dead colour be Lamp-black and a little Verdigreaſe, and go over it when dry with a little Ivory-black, and when you have heightened it with White, go over the Work with Verdigreaſe and Ivory-black.

For Orange colour, mix Lake and Red-Lead, laying the lighteſt part with Red-Lead and White, the mean part only with Red-Lead, and the deeper with Lake, and if it be neceſſary you may heighten with White.

For

For a Cloth colour, let the Ground be Umber and White, and for the deeper Shadows Black and Umber, for the mean Oaker and Umber, and heighten it with Oaker and White, and ſo much for colouring Garments.

Inſtructions how to Frame and Paint Landskips.

In this Work of Painting with Oil, begin with the Sky and Sun Beams, and the lighter parts, and then the Yellow, which muſt be done with Maſticot and White, the next your blue Sky with Smalt, leaving no part of the Ground uncovered, but lay the Colours ſmooth all over, working the Sky downwards, towards the Horizon, ſtill ſuffering it to grow fainter as it enclines nearer to the Earth, and work the tops of Mountains and other Objects very remote, ſo faint as they may appear loſt in Miſt or Air, and as for the neareſt and loweſt Ground, it muſt be a dark brown Earth colour, enclining a little to Yellowiſh and Green, as the nature of it requires, the next a light Green, and ſo proceed gradually; as they loſe in their diſtance you muſt leſſen their Colour, obſerving not to make any thing that is to be ſeen at a great diſtance, perfect or really, becauſe you muſt imagine it is at ſuch a diſtance that you cannot well diſcern it, but expreſs it in Colours weakly and faintly, as your Eye Judges it may be, always taking notice to place the Light oppoſite to the Dark, which will very much extend the proſpect, and do it ſo that the Shadows may loſe in their proportion

portion of distance, their force by little and little, as they remove from the Eye, observing always to put in the strongest Shadows neerest; put no Moon nor Stars but in a Night-piece, for they are not otherways naturally proper, because they cannot be well seen in the day; if you imitate an over-cast Sky, where black Clouds threaten a Storm, the Shadows may be on the meeting parts of the Clouds, this may be also done with Colours mixed with Water wherein Gum-Arabick has been dissolved.

If in any fair Landskip you express the Light of the Sun, always observe throughout the whole Piece, that you cast the Lights of your Trees, Rocks, Hills, Buildings, Ruins, and all other things expressed in it that way; observe also to lessen your Bodies proportionable, as they are nearer or farther distant, and carry it off so far that the Earth and Sky, or Water seem to meet. Rivers as they run to a distance must lessen their Streams, so Ships or Boats, and the like.

As for Living Creatures, Beasts, Fowls and Serpents, or Insects you must consider their Proportion, Shape and Colour, and get Draughts or Patterns, which will be better than Printed, Directions, and these kinds being numerous, for Brevities sake I must omit to treat of them.

To lay on Mezzo-tinto Prints on Glass.

In undertaking this, curiously lay the Prints flat-ways in warm Water, of the finest and thinest Paper, for that which is rough and thick will not do near so well, if at all, let them soak

ſoak well and your Glaſs being very white and thin, go over it with Venice Turpentine ſpread thin with a pliable Knife, and dab it all over with your Finger, that the Turpentine may ſeem rough.

This done, take the ſoaked Print and lay it on a clean cloth even, then preſs it with another, to take out the Water, then lay it on a Glaſs, the Print next it, beginning at one end, ſtroaking outwards the part already fixed to the Glaſs, that neither Wind nor Water may be retained between, to wrinkle it, then with a little Spunge, or your Fingers, wet the backſide, and lightly by degrees roll off the Paper carefully, without making holes, eſpecially in the Lights, which are the tendereſt, and when the Print appears very tranſparent on the backſide, let it dry about Two hours, then varniſh it over with Turpentine or Maſtick Varniſh, till you can ſee through it, and a Night's drying will prepare it to be worked on with Colours.

If you would have all the Paper off, ſo that nothing but the Print ſhould remain, lay it as before, with Oil of Maſtick, and a little Turpentine, and a Bruſh will fetch off all the Paper.

To Paint Landskips of Mezzo-tinto.

As for the Poſture to do any of this Work, the beſt is ſitting to a true Light, your Pencils muſt be fine, and in the firſt place glaze all the places that require, and if you would have them thin as they ſhould be, and ſoon dry, mix Varniſh as they are laid on, and in Four hours you may venture other Colours. In

In this Work glaze the neareſt and greateſt Trees, Ground them with brown Pink, or if you fancy them greener, uſe diſtilled Verdigreaſe, and where the Leaves and Weeds that appear in ſome Landskips very ſprightly and extraordinary green, muſt be glazed with diſtilled Verdigreaſe, and Dutch Pink, the Trees appearing farther off with only the former; the Hills, Rocks, Mountains and Trees at the greateſt diſtance, glaze with Smalt, a little Lake, and Verdigreaſe thinly mixed with Varniſh; as for the Skies, uſe Ultramarine or fine Smalt, mixed with thin varniſh, glaze it over Two or Three times with a large clean Pencil, and nimble ſtrokes, if Buildings or Ruins of Buildings appear in it, finiſh them firſt; and the mixture of Colours for theſe conſiſt of Yellow, Black, White, and now and then a tincture of Red.

To finiſh Ground Trees and Skies, begin with the neareſt and largeſt Trees, do over the lighteſt Leaves with white Pink and a little Smalt, and neatly do over the darkeſt and neareſt Leaves, with a little Pencil diped in Varniſh, and thoſe Trees you would have very beautiful, Paint with a mixture of Verdigreaſe, Yellow Maſticot and White, the darker parts with white Verdigreaſe and Pink, as alſo thoſe Trees you glaze with Verdigreaſe only, they being very light mixed with White.

As for the Skies and Foreskips, if any Clouds appear, let them be touched with Varniſh, and a light colour made of white Lake and yellow Oaker; touch alſo with theſe the light parts of

Hills, likewiſe Towns, and the remoteſt diſtance; then mix White and Smalt, as light as conveniently may be, and Paint over the Sky, add a tincture of Lake for the dark Clouds; let the Colours lie even and thin, and when finiſhed, give it time to dry, to make it look more lively, ſet the Picture againſt the light, that the Shadows may appear.

Of Painting Figures this way, as Men, Women, &c.

In Painting a Face, where there are deep Shadows, glaze and touch them thinly with brown Pink, Lake and Varniſh, alſo the black Ball, and white Speck of the Eye, as you will be directed by the Print, the round white Ball muſt likewiſe be of a convenient colour; if the Lips are to be of a curious Red, glaze them with Lake or Cazamine, and then begin with the dark ſide of the Face, and Paint the Shadows with the Colour more Red than uſual; to do this, Yellow Pink, Vermillion and White are moſt proper; and note, no Varniſh muſt be uſed in Painting Fleſh Colours, except in glazing the Shadows, for the Varniſh drys ſo faſt, that you cannot ſweeten the Shadows of the Fleſh.

After this give a few touches on the ſtrongeſt light of the Face, as the Forehead, top of the Noſe by the Eyes, Chin and Mouth, which Colour muſt be made white with pale Maſticot, or Yellow-Oaker, and a little Vermillion mixed, according to the Complexion intended; then

then mix that Colour a little darker, and lay it on all the Face that before you had not very carefully painted, yet that for the Mouth and Cheeks must be somewhat redder.

Now with a fine clean Pencil, that has been worn a little, hatch and sweeten the Flesh Colours and Shadows sweetly together, taking care to cleanse your Pencil as often as it is requisite, so that whilst the piece is moist and wet, you may regulate Cheeks too pale, or any other defect.

If the Complexion be Swarthy, mix the Flesh colour with White, Brown, or Yellow Oaker, and light Red, with agreeable Shadows; and by this means you may Paint naked Breasts, Bodies or Hands, always being careful that your Pencil be steadily guided, for the least slip mars the Feature, and trespass not on Features and Lines of a disagreeing Colour.

How to Paint the Hair.

In this Painting you have no occasion to use Colours or Varnish near so dark as the Life, for the Print contributes to the darkening of it, as suppose you were to Paint Black Hair, you mix black Red Oaker with a touch of light Red or Lake, and these may well produce an Ash-colour, and the Hair coloured with it, will show you a natural Black; if you would make the Curls stronger, with a lighter colour, touch the lightest part, and the darkest with the contrary, which you may well see through, if the Colours are not laid too thick.

Of Painting Garments or Drapery.

If you are to Paint Cloth or Drapery, in a broken Colour, obſerve carefully its mixture, however you muſt make three degrees of that colour, one the proper Colour, another more light, and the laſt darker, for it muſt be for the darkeſt folds, and the lighteſt for the lighteſt Pleats, and that between both for the other parts.

With a worn Pencil ſweeten the Colour, ſo that the Folds may lie hard, and if you intend to make a Fringe, Imbroidery or the like, add to them Shell or Powdered Gold or Silver, mix your Minerals with Gum water, having a fine Pencil to Hatch or Imbroider the Flowers, and touch the Fringes and other Imbroideries before you glaze, after this manner, *viz.* I imagine the changeable Draperies Ground to be Purple, and the light Yellow, then muſt I take a fine Pencil dipped in Varniſh, and thinly touch all the lighteſt parts of the Folds with Yellow Maſticot, if there be occaſion to repeat it, for it muſt be granted the Colour muſt be very thin with Varniſh.

When dry I muſt glaze all over with Lake, Smalt, or Ultramarine, once or twice with Varniſh, and ſo it muſt dry, and then I mix three degrees of Purple colour, of Smalt Lake and White, and lay them on as directed, and by theſe meaſures fitting your Colours ſutable to your Intention, you may Paint any other coloured Drapery, which in this little Book I want room to particularize.

The

The Curious Art and Mystery of Japaning.

To be a Proficent in this Art, several matters are required, and these you must consider as suitable, not only in property but goodness, that your Cost and Labour may not prove in vain.

As, two Strainers made of Flanel, moderately fine, or of course Linen, in the nature of a Tunnel, for to Strain your Lac Varnish, and the other for your White Varnish, and the first of these may serve for Lackers, when your occasion requires you to make them; besides these, there are required two Tunnels of Tin for the same purpose as before, Glass Bottles and Vials small and great, must be in a readiness, as to suit with the quantities of Varnish your business requires you to use, and Gally Pots to put it in when you design to work, as also to mix your Blacks in, when they come to be ordered with other things.

As for Tools, they are no less requisite, for without them, this Art would be insignificant, and therefore to furnish your self with them, you must have Pencils according to the greatness or smallness of the things intended to Work on; those for the Varnish must be made of Camels Hair very soft, and are of various prices as to the largeness or fineness; likewise drawing Pencils, placed in Swallow, Duck, or Goose Quills, as the fineness or largeness of the stroke requires, and the longest haired Pencils are accounted the best in this business; you must

have in a readiness a considerable number of Muscle-shells to mix Colours and Minerals in, as the occasion shall require it. Dutch Rushes, are another material useful in this matter, to smooth the Work before it is Varnished, or take off the knobs or grittiness from the Ground, or when it is Varnished.

Tripoly is proper to Polish this Work with when Varnished, being reduced into fine powder and sifted; as for Linen Rags, you must be provided with them, both fine and course, to clear and polish this Work, also Olive Oil for a clearing; as many of these things shall be directed hereafter, as they occur in due place, in the Work.

Several things necessary to be used in this Art, *&c.*

Of Spirit of Wine.

This is of main use in Varnishing, and if it be not properly qualified, it will spoil the Varnish, and not be capable, for want of Strength to dissolve your Gums, or make them spread, and so consequently lie uneven upon the Work, and to know when this Spirit is sufficiently rectified, put some of it in a Spoon, and put a little Gunpowder in, and if it burns out, blows up the Gunpowder, and leaves the Spoon dry, then it is a good Spirit, but failing in this, and leaving the Spoon moist when the flame extinguishes, it is not fit for your use.

Of

Of Gum Animæ, Gum Lac, and Gum Sandarack.

To chuſe theſe well, as for the firſt, take the moſt tranſparent, cleareſt and whiteſt, which is the beſt.

The ſecond alſo, called Seed Lack, chuſe that free from droſs, ſticks or duſt, large grained and bright.

As for the third, take that which is large and very white, caſting the leaſt yellow, free from duſt and droſs.

Of Shell-Lac, White Roſin, Bole-Armoniack, and Veniſe-Turpentine.

As for the firſt, that is beſt which is moſt perſpicuouſly tranſparent, will eaſily melt, and draw out with your Fingers as fine as a Hair.

As for the ſecond, chuſe for your uſe that which is the whiteſt and cleareſt.

As for the third, that is moſt fit for your purpoſe, that is free from grittineſs or gravel, and is of a blackiſh red colour, commonly called French-bole.

Of Gum Elemi, Gum Arabick, and Gum Capal.

As for the firſt, chuſe the hardeſt, and freeſt from dirt and droſs.

Chuſe the ſecond white and tranſparent.

As for the third, that is beſt for your uſe that is whiteſt, free from droſs, and the thick dark ſtuff incorporated with it.

Of Gambogium, Iſinglaſs, Benjamin or Benzoin, Dragons Blood, &c.

Theſe are other things neceſſary in this Art, and ought to be well choſen.

As for the firſt, the beſt is that of a bright yellow, free from dirty thickneſs and droſs.

Chuſe as to the ſecond, that which is whiteſt and cleareſt, free from yellowneſs.

As for the third, the beſt is that of a bright red colour, much like to clarified black Roſin, free from all droſs and filth.

The fourth, when the beſt, is of a bright red, free from droſs, it may be had as the others at the Druggiſts, but the prices I ſet not down, becauſe they generally riſe and fall.

Of Silver Duſt, Braſs Duſt, Green Gold, Dirty Gold, Coppers, Powder, Tin, &c.

The Silver Duſt, the beſt is brought from beyond the Seas, and is known from the Counterfeit by being ſqueezed between your Finger and Thumb, giving a glorious Luſtre, as indeed it does in the Work.

Braſs Duſt, by Artiſts called Duſt Gold, is the beſt made in *Germany*, the beſt is of a fine bright Colour, neareſt reſembling Gold, try it as the Silver Duſt; as for the courſe ſort, though it will work pretty well with Gold Size, yet it will not do ſo with Gum water. Green

Green Gold, a corrupt Metal so called, is very good in this Work, for casting a fading Green Colour.

Dirty Gold is a corrupt Metal, casting a dark, dull, though Silverish Colour, bearing pretty well a resemblance to dirty drossy Gold.

Coppers are three sorts, Natural, Adulterate and Artificial; as for the Natural, being cleansed, it may be ground without any mixture.

The Adulterate is most fit for a Ground, and serves commonly to lay other Metals on, as in hetching or heightening Gold or Silver on; but the Artificial is of a higher and brighter Colour than either: There are also used in this Art, those called Speckles of Copper, Gold, and Silver, and divers other Colours differing in fineness, which may be worked as the Artist fancies, either on the outsides of Boxes or Drawers, or on Mouldings, and may be purchased ready done.

Of Colours proper in Japaning.

Some of these are called transparent, on which Gold and Silver are to be laid, or some light Colour, so that by this means they appear in their proper Colours, lively and beautiful.

Of these, for a Green are Distilled Verdigrise, for a Red, fine Lake, for a Blue, Smalt; have to Grind these on a Porphyry or Marble-Stone. Grind with a Muller what quantity you please, with Smalt or Verdigrise, with Nut Oil, as much as will moisten the Colours, and grind them till they are as fine as Butter,

put then the Colours into Shells, and mix them with Oil of Turpentine till they become thin for use; lay them on Silver, Gold, or any other light Colour, and they will then become transparent, altering their lightness or darkness, according to that of the Metal or Colours that are placed under them; this for a curious Red, may be done with Lake, but then use drying Oil to grind them with.

If you design Figures on the black of your Table or Boxes, as Trees Birds, or Flowers, those may be done for White, with White Lead; for Blue, Smalt, mixing it with Gum Arabick Water, and mingle them as you please, to make them lighter or deeper; Flake white is a very pure White, but the other will do for ordinary Work, and you must use either of these with Smalt, or all other Colours that have not a Body of their own; you may for a Purple use Russet, fine Lake, and Sea green, and it may be done with other sorts of Reds and Greens, and except transparent Colours, all must be laid with Gum water.

Seed Lac Varnish how to make it.

Your Ground Work is good rectified Spirits, of which you may take a Gallon, put it into as wide a necked Bottle as you can get, that the Gums may the better come out, then of the best Seed Lac add a pound and a half, let it Macerate twenty four hours, or till the Gums are well dissolved, with often shaking, to keep them from clogging together; then with Flannel

nel Strainers ſtrain it into a Tin Tunnel, placed in the Mouth of the empty Bottle, the Strainer may be made as before directed, and ſqueeze the Droſs in the Bag, and throw it away as of no uſe; then let the Varniſh ſettle, and pour it off into other Bottles, till it riſes thick, and no longer, then ſtrain the thick part, and ſettle that again, and keep the fine Varniſh for your uſe, and this does as well, without the danger of attempting to boil it, which endangers firing the Houſe, and the Party's Life.

Shell Lac-Varniſh, how to make it.

This in curious gloſſy pieces of Work is not of value, but in Varniſh'd Woods it ſucceeds; to make it, put to a Gallon of Spirit a pound and a half of the beſt Shell Lac, order it as the former, and though it has no Sediment, it is proper however it ſhould be ſtrained, to take away the ſticks or ſtraws that may be in the Gum, nor will it ever be fine and clear as the former, but turns in a few days to cloudineſs yet it is fit for courſe Work, and much uſed.

White Varniſh, how to make it.

Take an ounce of White Gum Maſtick, and an ounce of White Gum Sandarach, three ounces of the beſt and cleareſt Venice Turpentine, Gum Elemi half an ounce, Gum Capal an ounce and a half, Gum Benjamin or Benzoin of the cleareſt, half an ounce, and half an ounce,

ounce of White Roſin, and the Gums being ſeparated in their quantities provided, put the Roſin and Capal in a Glaſs Vial, with half a pint of Spirits, that they may be diſſolved; and to the ſame end, in a Glaſs Bottle of three quarts of Spirits, put the Venice-Turpentine, Animæ and Benjamine, and in another Bottle the Gum Maſtick and Sandarack, in a pint and a half of Spirits, then diſſolve the Gum Elemi in a quarter of a pint of Spirits, powder very finely the Animæ and Benjamin, the better to diſſolve in the Spirit, and then pour them off into one large Bottle, let them ſtand to fine as the former, and then ſtrain them through a Linen cloth gently, not hardly preſſing the Sediment, leſt you carry the grittineſs of the Gums along with you, to injure the Varniſh.

General Rules for Varniſhing.

This is a point nicely to be obſerved, or your labour and coſt may be in vain.

1. If you chuſe Wood that requires to be Varniſhed, let it be exempted from knots, very cloſe grained, ſmooth, clean, well ruſhed, and free from greaſineſs.

2. As for your Colours and Blacks, lay them even, and exquiſitely ſmooth, ſweep all roughneſs off with your ruſh.

3. Keep your Work ever warm, but not hot to raiſe bliſters or crack it, which nothing but ſcraping off all the Varniſh can amend.

4. After every diſtinct waſh, let your work be thoroughly dry, for neglect in this point introduces the fault of roughneſs. 5. After

5. After it is Varnished, let it lie by and rest as long as your conveniency will admit, and it will be the better.

6. Ever take care to begin your Varnish strokes in the middle of the Table, or what you do it on, and not from one end to the other, and your Brush being planted in the middle, strike it to one end, then take it off, and fix it to the place you began at, so draw, or extend it to the other end, and so continue it till the whole plain be Varnished over, and beware you overlap not the Edges, which is, when the Varnish hangs in splashes or drops on them; therefore to prevent it, draw your Brush gently once or twice against your Gally-pot side.

7. When you have proceeded so far as to come to polish, let your Tripoly be very fine, and the finer the Work, let it be still the finer, and use fine Rags, keeping your hand moderately hard upon it, and brighten or polish one place as much as you intend, e'er you leave it and pass to another, and always have regard, that you polish your Work as smooth as you intend at one time, but if your Conveniency will admit, let it rest two or three days before you give the finishing strokes after you have polished it, but come not too near the Wood to make it thin and hungry, for then it will require another Varnish, or remain to your discredit.

8. Take a sufficient quantity of Tripoly at the first polishing, till it begins to come smooth, and

and ſo leſſen by degrees, and carefully obſerve there be no ſcratches or grating in it.

9. When you have a mind to clear up the Work, waſh off the Tripoly with a Spunge, and ſoak up the wet with a fair Linen Cloth, and with Lamp black mixed with Oil, gently ſmeer the whole face of it, let no corner nor moulding of it eſcape, that the whole Piece may be freed, then with other Linen, and a hard hand cleanſe it of that, and theſe things done there will be an admirable gloſs.

For white work, let your poliſhing be gentle and eaſie, do it nimbly, and clear it with Oil and fine Flour, and in exactly obſerving theſe Rules you will prove an Artiſt.

Of Black Varniſhing, or Japan.

Provide for this imitation of Japan, a cloſe grained Wood, well wrought off, Ruſh it ſmooth and keep it warm by a Fire, but never ſo near as to burn, ſcorch or bliſter your Work, then add to Seed-Lac Varniſh, as much Lamp-black as will at the firſt ſtrokes co'our the Wood; do it three times, permitting it to dry well between every doing, and alſo Ruſh it well, then with a quarter of a pint of the thickeſt Seed-Lac, mixed with an ounce of Venice Turpentine, put in more Lamp-black, ſo much as may well colour it, and with this waſh it ſix times, letting it ſtand twelve hours between the three firſt, and the three laſt waſhings; then with the fineſt Seed-Lac juſt tinctured with the Black, do it over twelve times, letting it dry between

between every time doing, after which let it remain for five or ſix days before you poliſh it.

At the end of that time, take Water and Tripoly and Poliſh it, having firſt dipped your Cloth in Water, and rub it till it gains a very fine ſmoothneſs and gloſs, but do not rub ſo as may any ways wear off the Varniſh, which cannot be eaſily repaired, then uſe a Rag wetted without Tripoly, and clear it up with Oil and Lamp-black, yet Poliſh it not all at once, but let it have ſome days reſpite between the firſt and laſt Poliſhing, and at leaſt three or four days.

White Varniſhing or Japan.

This muſt be curiouſly done without any ſoiling, and therefore you muſt be cautious of letting any dirty thing come near, whilſt you are doing it.

To begin this Work, ſcrape as much Iſinglaſs as will make it of a reaſonable thickneſs, or when dipping your Pencil into it, it will with a ſtroke whiten the Body which has been paſſed over with a Bruſh, but let it be in neither of the extreams, too thick or too thin. then mix it with your Size, whiten your Work over with it, and when dry, repeat the ſame, covering it from all manner of Duſt before it is Varniſhed; it muſt be whited three times, and dried between every one of them, ſmooth, and lay it as cloſe as you can to the Wood with your Ruſhes; then mix White Flake with your Size,

Size, only so that it may lie with a full and fair body on the Piece, and whiten your Work three several times, with this drying between each, then make it with your Rushes very smooth, but keep your distance from the Wood.

In the next place, take white Starch boiled in fair Water till it come to be somewhat thick, and when it is luke-warm, wash over your Work with it once or twice, drying between whiles, and let it then stand twenty four hours, then take the finest of the white Varnish I have directed you to make, wash your Pencil in Spirits, and wash or anoint your Work six or seven times, and after thirty or forty hours, do the like again, and if done with a dexterous hand, a better gloss will be set on it than if it had been Polished; but if it miss of that gloss, it is requisite that you Polish it; and in order thereto, you must accommodate it with five or six washes of Varnish more than the former, and it must continue to settle well about a Week before you Polish it.

In Polishing, your Linen and Tripoly must be of the finest, being neat and careful in all this operation, your hand carried light and gentle, having your cloth neither too dry nor too wet, and clear it up with fine Flour and Oil.

Isinglass Size, how to make it.

Break and divide an ounce of Isinglass into little pieces, put it into a glazed, clean, and well covered Pipkin, and let it for twelve hours

soak

ſoak in a pint and a half of fair Water, then place it over a gentle fire, till it boil well at leaſure, and when the Water is conſumed to a pint, let it ſtand to cool leiſurely, and then it will be a Gelly, and may be uſed in the White Varniſh, and other works, but make no more at a time than you will uſe, for in two or three days it will prove naught.

Red Japan, to make it.

The Reds are properly three, *viz.* the Common Red, the Deep dark Red, and the Light pale Red.

In the firſt Vermillion is proper, mixed with the thickeſt of Seed Lac, warm the work and mix your Vermillion with the Varniſh in a Medium, carry it over it four times, permitting it to dry as the former; and if your Reds be in a good body and full, Ruſh it ſmooth, then with the ordinary Seed Lac Varniſh waſh eight times, and after twelve hours Ruſh it again; and then for a curious outward covering, give it eight or ten waſhes with Seed Lac-Varniſh, and after five days Poliſh it, and clear it with Lamp-black and Oil.

Of the Dark Red.

The Common Red laid as before directed, deepen it with Dragon's Blood mixed with your Varniſh, and when it has pretty good colour, go over it with Lac-Varniſh, which will much deepen and ſtrengthen the Colour, and

and in all things elſe, as to Poliſhing and Clearing, do as in the former Red.

Of the Pale-Red.

To do this, grind white Lead with a Muller on a Stone, and when it is finely done, mix it with ſo much Vermillion as will make it a Pale Red, mix Varniſh with them, and give the Work four waſhes, and follow the preſcription of the Common Red, conſidering well, that the after-Varniſh will heighten the Colour.

An Olive coloured Japan.

Take Engliſh Pink colour, grind it with common Size, and when it is like Pap, mix with it a proportion of Lamp-black, and White Lead, and work it as in other Japanning.

Cheſnut coloured Japan.

To do this, take Indian Red, or elſe Brown Red Oaker, grind it well, and mix it with ordinary Size, then grind a little White Lead extraordinary well with the ſmall Size, mix with it Lamp-Black, and ſo both with the Indian Red-Oaker, ſtir, and well incorporate them together, if the Colour be too bright, darken it with the Lamp-Black, if too dark, lighten it with White Lead, and ſo bring the Colour to your Mind; conſidering always that your Varniſh will heighten it.

With

With this waſh over your Work, let it dry, and repeat it till your Colour lie full and fair, Ruſh it ſmooth, but not cloſe to the Wood, unleſs you deſign anew to begin your Work, and give it a ſecond Varniſh.

After it has ſtood three or four days, give it a Luſtre with Seed-Lac, and when dry fit it for Polliſhing with white Lac-Varniſh, and clear it with Oil and Lamp-Black.

Blue Japan.

To do this, grind White Lead very fine, add Smalt as finely ground, mix them with Iſinglaſs Size, the White Lead grind with Gum-water, let there be a proportion of White and Blue, and mix them well to the thickneſs of common Paint, go over your Work with it, and when it is well dry, proceed ſo three or four times, till the Blue lies with a fair body, Ruſh it ſmooth, and go over it again with ſtronger Blue, and when dry waſh it with the cleareſt Iſinglaſs Size, having a new Pencil for that purpoſe, then when it is dry, warm it by the fire, and go over it with a Pencil dipped in White Varniſh ſeven or eight times, and ſo let it continue for a day or two, then waſh it as often as before, and ſo continue many Operations at intermitted times; for a week at leaſt muſt paſs, before you can well venture to Poliſh it, and when it is Poliſhed, Clear it with Oil and Lamp-Black.

Note, That in no wiſe you mix your Colours with Iſinglaſs Colours too ſtrong, leſt when dried,

dried, they be apt to crack, fly, and spoil the Piece, but when you lay your Wash of clear Isinglass, to keep your Varnish from tarnishing, or soaking into your Colours, then it is proper that it be of a full and strong body.

And thus much may very well suffice the Learner, to give him an insight into this excellent Art, from whence I shall proceed to other things, useful and profitable.

Of Speckles, for the Adorning Japan'd Work.

Mix so many Speckles as you have occasion for, with ordinary Lac Gum Varnish, so much, as when they are put into a Gally pot, will fit them for working with a convenient Pencil, but not so thick as Colours, keep them stirring very well with a Brush, and generally warm by the fire: This continue till you perceive the Speckles lie thick and even to your mind, so beautifie them with three or four washes of Varnish, mixed with Turpentine, and this, unless you intend to Polish, will be sufficient, but then you must give it after all this eight or ten washings with the Prime Lac-Varnish, drying between whiles, and then Polish; and on this manner you may lay on all coloured Speckles; but Silver requires Seed Lac-Varnish, and the best White Varnish e'er it can be brought to a good Polish, but if not to be Polished, you may spare your Varnish.

To lay on Speckles in Japan Work, &c.

If you design to Adorn your Work with Flowers, Rocks, or Garments, *&c.* Varnish the places intended with a fine Pencil, and through any small Sieve shake the Colours you design, whilst the Varnish is wet, and sweep up in Rock-Work all Speckles that straggle on the edges, with a new dry Pencil lodge them on the sides and top of the Rock, which sticking, will render the Work more beautiful, and give it a Shadow or Reflection.

This must be done with all diligence, and no intermission had till finished, till once covered, and being once dry, operate again, and so one upon another successively, to shape it to your mind; and in sweeping the Speckles, intermix not one portion of scattered parts with the other, that are of a different colour, but every parcel in the proper station, to beautifie the better: At first when laid, it will look dull and heavy, but the securing Varnish in a little time will add to it a pleasant, beautiful colour; and so you may do Flowers, Trees, Garments, and many pleasant things to Adorn your Work.

Wood, how to overlay with Gold or Silver.

To prepare this Work, you must be furnished with Parchment-Size, that is, the cuttings of Parchment boiled in fair water to a gelly, and

and when ſtrained and cooled, it will prove a ſtrong Size.

When you are to uſe it, put as much as you ſhall want into an Earthen Pot, and make it hot, then as it is cooling, ſcrape as much fine Whiting into it as will colour it, mix them well with a clean Bruſh, and with this mixture white your Wood or Frame, ſtriking or jobbing your Bruſh againſt it, that it may the better enter in the hollowneſſes of carved work, then give it reſt, that it may dry.

This done, melt the Size again, and put in more Whiting to render it ſome degrees thicker, and with this, do over the Frames ſeven or eight times, or as you ſee there is a neceſſity, and when it is dry, open with a Gouge no bigger than a Wheat-ſtraw, the Veins in the Carved Work, that the Whiting has ſtopped up, then with a fine wet Rag and your Finger, carefully ſmooth and water, plain it over, and Ruſh it ſmooth when dry, if neceſſity require it; and in this Condition it will well receive your Gold or Silver Size; but before I proceed, I ſhall teach you to make theſe Sizes.

The beſt Gold-Size at preſent in uſe.

Take an equal quantity of the beſt French and Engliſh Bole-Armoniack, grind theſe fine on a Marble ſtone with fair water, then ſcrape into it a little Candle greaſe, incorporate and grind all theſe well together, then mix a little quantity of Parchment-Size, with a double proportion of Water, and the buſineſs is done.

The

The beſt Silver Size in uſe.

Grind fine Tobacco-pipe Clay very ſmall, mix with it as much Lamp-black, as will turn it of a light Aſh-colour, and to theſe add bits of Candle greaſe, grind them very fine together, a mixture of Size and Water, and try theſe on the corner of the Frame; if it be rough in burniſhing, put more Oil or Greaſe, and as near as you can bring it to a due temper, that it may work well.

To Size your Frames, or other Matters.

To do this, make the Size blood warm, and with a fine Bruſh ſtir it very well, till it is ſomewhat thin, go over the Frames with it twice or thrice, yet touch not the hollow parts of the deepeſt Carvings, where the Gold cannot conveniently be laid, for the yellow colour nearly reſembling firſt laid on, the fault will not ſoon be diſcovered; let it dry four or five hours, and then try the Gold if it will Burniſh on it, if not, alter the Size, and do it over again.

To lay on the Gold, in order to Burniſhing.

Let your Frame or other Matter intended, be ſet on a Hazle, place the Leaf Gold on a Cuſhion to be held in your Left-hand with the Pallat and Pencil. You muſt for this Work have a Swan's Quill Pencil, or a larger of Camels Hair, if the Work require it, dip it in Water and

and wet no more of your Frame at a time than will take up Three or Four Leaves, make your beginning at the lower end, and ſo proceed upwards, laying on whole Leaves or half ones, as it requires, then wet ſuch another part of your Work, and lay on the Gold with your Pencil or Cotton, gently preſſing it very cloſe; and having Gilded the upright ſides, turn the Frame, and proceed the ſame way with the ends, then ſurvey the Spots and Places that are omitted, and cut ſmall parts of Gold to cover them, when wetted with a ſmaller Pencil than before, when it is ſo finiſhed let it ſtand till the next day that time you leave off.

To Burniſh the Gold-work.

Take a Wolf or Dogs Tooth, if you cannot get Aggets or Pebles formed into the ſame ſhapes, and Burniſh ſo much of the Work as you deſign, leaving the Ground of the Carving untouched, and ſome other parts as you ſee beſt convenient, which in reſpect of the Burniſhing being rough, the better ſets it off: That which is omitted to be Burniſhed, muſt be Matted, or ſecured with Seed Lac-Varniſh or Lacker, if you deſign it a deeper colour, then muſt your Work be repoſſeſt or ſet off with Lacker, mixed with Saffron and Dragons Blood, or the colour called Ornator, and with a fine Pencil dipped herein, touch the hollowneſſes of the Carving, and the Veins of the Foldages or Leaves; if you fancy it is not deep enough, you may by a repetition make it ſo, and the Work is done.

To lay on Silver Size.

Warm the Silver Size that is newly ground and mingled well with weak Size, as you did the Gold Size, do it once or twice, and let it dry, and try the Leaf Silver, if it will Burniſh on it, it is prepared for the Work; but if it will not, make an Alteration in the Size, and for the reſt, lay on the Leaf-Silver, and do as you did by the Gold, and it will anſwer.

Note, as farther Rules, and ever obſerve them.

1. Let your Parchment Size be ſomewhat ſtrong, keep it not long, leaſt it ſpoils.

2. Grind no more Silver or Gold Size than juſt you have preſent occaſion for.

3. Ever keep your Work clean from Duſt, after it is Sized and Gilded, or elſe in the Burniſhing it will be full of Scratches.

4. Do not Whiten or Burniſh Gold Size in hard Froſty Weather, for then the Whiting will be apt to peel off, and the Gold flaw.

The Art of Gilding Metals.

To Prepare the Gold.

Take Ducket, or Leaf-Gold, what quantity you deſire, obſerve to beat the Ducket very thin, and put this Gold with as much Quick-ſilver as will juſt cover it into a Gally-Pot, where let them continue half an hour, where immediately after the mixture ſtir them with a ſtick, then ſtrain them through a piece of Leather,

squeezing with your hand till you have forced out as much Quick-silver as you can industriously do, so that what remains in the Leather, looks more like Silver than Gold., yet this only must be employed in Gilding after the following manner.

To Gild with Gold, Silver, Copper, Brass, Princes Metal, &c.

Brush first your Metal well, with a Wire Brush, wet it with Water or Beer, and brush on till the dirtiness or filth be quite removed, that the Gold may more closely join it, prepare then your Quick-silver, by mixing it with a little Aquafortis in a Vial, three or four drops of the Aquafortis to an ounce of the Quick silver, quicken your Work with it, *viz.* rub it over with a Rag or your Finger, till it appears all Silvered, or touched. This done,

Take your prepared Gold, and with a small Knife, or Iron Tool proper to the purpose, spread, or overlay the whole piece, omitting no part, give it two or three little heats, before you give it a thorough heat, so that with a Hair Brush like a Comb Brush, you may dab and spread your Gold, these little heats making the Quick silver more ready to comply; then give it the thorough-heat, which will compel the Mercury or Quick-silver to evaporate or fly away, then take it from the Fire, and with a scrub Brush, untouched with Quick-silver, cleanse it as at first; if you perceive any untouched spot of Quick-silver, the Gold must be laid on it again, when it is cleansed with a

scratch

ſcratch Bruſh, and after this manner you may heighten its colour if you ſee it neceſſary.

To heighten the Colour of Gold.

Take an equal quantity of Salt Argal and Brimſtone, mix them with as much fair Water as will cover the gilded Metal when put into it, boil them well, and tying your Gilded Metal in a ſtring, plunge it in for a little ſpace, often plunging, and looking as often on it as you draw it out, and when the colour is heightened to your expectation, dip it in cold water, and the work is done; you may in the foregoing manner double or treble Gild, till the Gold enriches it to a laſting thickneſs and colour.

To Counterfeit Tortoiſeſhell.

To do this well, let the Wood you intend to work on, be very cloſe grained, clean and ſmooth wrought off, as Pear tree, or the like; but if rough grained, you muſt Prime it with Whiting, as you are taught in Black Japaning, for coarſe grained Woods, Ruſh it ſmooth and go over it with Seed Lac-Varniſh, the breadth of a Silver Leaf, which take up with Cotton, and lay on it moiſt, as cloſe as may be; then waſh again, and place on another Leaf of Silver, and ſo continue till the Wood is over-ſpread with Silver, and when dry, ſweep off all the looſe Silver with a Hair Bruſh, then finely grind Collins Earth, and mix it with Gum Water or Common Size, and with this, having added more Size or Gum Water than it was ground

withal, Spot or Cloud the Ground-Work, having a fine, true, natural Shell by you to imitate, and when this is done, you will perceive ſeveral Reds, lighter and darker, appear on the edges of the Black, and many times lie in ſtreaks on the tranſparent part of the Shell; to imitate this finely, grind Sanguis Draconis with Gum-Water, and with a fine Pencil draw thoſe warm Reds, flushing it in about the dark places more thick, but fainter, thinner, and leſſer of colour towards the lighter parts, ſo ſweetening it, that it may in a manner loſe the Red, being ſunk in, in the Silver, or more tranſparent parts.

When it is done and dried, give at leaſt ſix waſhes of Seed Lack-Varniſh, and when it has continued twenty four hours, Ruſh it gently, and when it is ſmooth, and fit for the ſecond Operation, grind Gambogium very finely in an equal ſmall quantity, put theſe into as much Seed Lac-Varniſh, as will ſerve to waſh it another ſix times, then let it ſtand twelve hours, and give it the third Varniſhing, and with the laſt mixture waſh it ſo often, that the Silver is changed to a Golden colour, and the work is done.

To Dye Wood a curious Red.

The Wood that takes this clour muſt be very white, and to begin it put a handful of Allom in a moderate Kettle of Water, and caſt your wood into it, and when well ſoaked, take it out, and put in two handfuls of Raſped Braſil-wood, and when that has boiled well, put the Wood in again for a quarter of an hours boiling, and it will take the colour.

To

To Stain a curious Yellow.

In this caſe, take the knotty Aſh or Bur, that is very white, knotty and curled, Smooth and Ruſh it very well, and when it is well warmed, waſh it over with a Bruſh dipped in Aquafortis, then hold it to the fire till it deſiſts to ſmoke, Ruſh it again when dry, then Poliſh it, and Varniſh it with Seed-Lac, and it will be of a curious colour, not inferiour to any Outlandiſh Yellow wood, and if you put filings or bits of Metal, as Copper, Braſs, *&c.* each Metal will produce a different tincture.

To Stain or Dye Wood Black.

Boil Logwood in Water or Vinegar, and two or three times Bruſh or Stain your Wood with it when very hot, then take Nut-Galls and Copperas, bruiſe them well, and boil them in Water, and with it Waſh or Stain your Wood ſo often, till it be a perfect Black, or rather ſteep it in the hot Liquor if you can put it in, and the Dye will penetrate the better.

To Dye or Stain Wood for Inlaying of Flowers or other things in Cabinets.

Get moiſt new Horſe Dung, and ſqueeze out the moiſture through a Cloth, put it into ſeveral ſmall Veſſels fit for your purpoſe, and diſſolve Gum Arabick, and Roach Allom, each the quantity of a Walnut, and with theſe mix Reds, Greens, Blues, or any Colour that is ſutable to the work, ſtir them often three or four days, then take your Wood, particularly Pear-tree for White, cut into the thickneſs of half crowns, or ſo much as will ſuffice any

Inlayed work, and in a ſquare or length, according to your deſire, boil up the Liquors or Colours very hot, and put in the Wood till the Colour has well taken; ſome indeed you may take out ſooner, that the Colour being leſs ſtrong, may the better agree with your party-coloured Flowers, Shading, and the like.

To Dye or Stain, Ivory, Bone, or Horn Red.

Soak fine Lime about twelve hours in fair Rain Water, then pour off the Water well from the ſettling through a Linen Cloth, and to each Pint put half an ounce of Raſped Braſil wood, and having boiled your Materials in Alom-Water, boil it in this, and it will give a curious tincture.

To Stain Horn, Bone, Wood or Ivory Green.

Prepare your Materials, by firſt boiling in Alom water, then grind the common thick Verdigreaſe, or Spaniſh Green, a moderate quantity, adding half as much Sal-Armoniack, and put them into the ſharpeſt Wine Vinegar, as alſo the Materials you intend to Stain, and keep them there hot till they have taken a good tincture.

To Stain or Dye Horn, Box, or Ivory a curious Black.

To do this, put ſmall pieces of Braſil Wood into Aquafortis, and ſo continue them till they appear green, then waſh well your Materials in them, and boil Logwood in Water, into which put them whilſt they are warm, and

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in a little time the Ivory, *&c* will be of a curious Black, ſo that being Poliſhed it will look like Ebony or Japan, and if you would have any part for Flowers, or the like remain white, draw them before ſtaining with Turpentine Varniſh, and the black will not touch them, and afterward you may hetch them, and clear up with Oil and Lamp black.

To ſtain Skins Green.

Bruiſe a good Quantity of the Leaves of Nightſhade very well, diſſolve in the Juice well ſtrained out about two ounces of Alom, then put in half an ounce of Verdigriſe, ſuffer them to ſtand over a very gentle fire twenty four hours, then warm, dip in a Bruſh, and ſtrike over your Skins, let it dry, and repeat it till it has take a pleaſant Green.

An approved way to colour White Leather.

Theſe Skins muſt be hung in Lime or Chalk Water, that the Wool or Hair may be entirely ſtripped off, and they become ſupple, ſtretch them ſmooth on Tenters, bruſh them over with Alom-water very warm, and ſo tincture them with the Colours you deſign, ſutable to your purpoſe.

To put a curious Black on Leather.

Take two pound of the inward Bark of an Old Elder, the like quantity of the Ruſt or Filings of Iron, put theſe into two Gallons of Rain Water, and cloſe them tight up in a Veſſel, and when they have ſtood about ſix weeks, put in a pound of Nut-galls well bruiſed, a quarter of a pound of Copperas, let them ſim-

per a conſiderable time over a fire, and after twenty four hours ſtanding, and often ſtirring, pour out the Liquid part, and go over your Leather with it warm, and it produces a curious German Black.

To colour Leather a Bright Red.

Dip your Leather firſt in Alom-Water, and rub it well therein, then take ſtale Urin, boil it till it is half conſumed, ſcum it well, and put to it an ounce of the beſt Lake, Raſped Brazil Wood two ounces, and an ounce of Alom, add to theſe half an ounce of Sal Armoniack, ſtir them well over a moderate fire two hours, pour off the Liquid part, and bruſh over your Skins with it, till it takes a good tincture, remembring ever to let the Skins in all Colours dry well, between each going over with your bruſh, and your expectation will be anſwered to a very conſiderable advantage.

A curious French *Yellow for Skins.*

Take Wood-Aſhes and Chalk, of each a like quantity, and when you have made a good Ley with Rain-Water, ſtrain out the fineſt part, and ſet it over the fire, then put in a ſufficient quantity of Turmerick well bruiſed or beaten to Powder, and as much Saffron as may give a lively Tincture, let it ſtand over a moderate fire, but not boil, till it becomes pretty thick, and being warm colour the Skins with it.

For a deep Blue, or Purple.

Strain out the Juice of Elder-Berries, put to two quarts, an ounce of Alom, half an ounce of Smalt or Indico, ſet theſe over a gentle fire, and when warm, bruſh your Leather over with this Compoſition.

For a Crimſon Velvet.

Diſſolve Cake-Soap in fair Water and Bole Armoniack, each three ounces, place them over a gentle fire till the Liquor grows clammy, then put in a little handful of Grains of Cochineal, two ounces of Red Lead, an ounce of Lake, and a quarter of an ounce of Vermillion, a little piece of Indico, mix theſe well over a gentle fire, till they are the thickneſs of the glare of an Egg, then go over the Skins with a ſoft Bruſh dipped into it, till the Colour ariſes to your mind.

To Imitate the Turkey-Blue.

Take two ounces of Smalt, a quarter of a pint of Red Wine, half a pint of Vinegar, an ounce of White Starch, incorporate theſe over a gentle fire, till they come to a moderate thickneſs, then ſoak the Skins with Alom Water; add to the Compoſition a pint of Water, wherein Gum Arabick has been diſſolved, and ſtir it well, go over the Skins three times, drying them between whiles, and when well dryed, Poliſh them over to render them gloſſy.

For a Light Green.

Take the Juice of the Herb called Horſe-tail, add to it a little Alom, Verdigreaſe and Copperas.

To Cover or Dreſs Skins with Gold or Silver.

Grind Brown red with a Muller, on a Marble Stone, add to liquidate it a little Water wherein Chalk has been diſſolved, and lightly go over the Skins till they look whitiſh, and before they are dry lay on the Leaf Gold or Silver, a little lapped over one another, that no ſpace be found wanting, and when they ſtick well to the Leather, and are dry, Poliſh them over with ſmooth Ivory, or a Horſe's Tooth, and it will give a very glorious Luſtre; the Silver you may Lacker over with Lacker Varniſh, and change it into a Golden Colour.

Or another way, take Glare of Eggs, or Gum Water, bruſh the Skins over with it, and lay on your Leaf Gold or Silver, doing as before.

To make Skins look Shining, without Silver or Gold.

Take Gum-Water, the Glare of Eggs, and the Powder of Antimony, grind and mix them well together, and the Skins being dry, lay it on them with a Bruſh three or four times, letting them dry every time between; then burniſh them over, and they will have a curious gloſs like

like Siver, which tinctured with Lacker Varnish will produce a Fading Gold Colour.

To Dye Bristles a Red Colour.

Take half an ounce of Alom, a quarter of an ounce of Vermillion, and an ounce of Rasped-Brasil-Wood, put these into a pint of Vinegar, and boil them moderately thick, and dip in the Bristles when it is very hot, and continuing there a time, they will be a fine Red; you may make larger quantities of the Liquor, with ingredients proportionable, and thus Dye Feathers.

Feathers or Bristles Green.

Take Verditer and Verdigrease, each an ounce, put them into a pint of Water, soak the Feathers or Bristles in hot Water, and then put them into this Liquor boiling-hot, and let them remain till they have taken a good colour, and so according to the Complexion of your Dyes, you may Colour them this way any Colour.

For Blue, let your Dyes be Indico and Bise.

For Black, Galls and Logwood, with a little Copperas.

For Purple, Lake, and Indico.

For Carnation, Smalt and Vermillion.

For Yellow, Yellow-Berries and Saffron, dissolving a little Tartar in your Water.

For Orange, Turmerick and Red Lead, and so of any other Colours you fancy.

Of

Of Dying Silks, Stuffs, Cloths, Thread, and other things, of divers curious Colours.

To Dye Silk a Sanguine Colour.

Take a pound of Green weed, and as much Alom, bruise them, and pour on them fair Water, add half a pound of Rasped Brasil, set them over a gentle Fire, well to mix them, then put in the Silk, suffering it to seeth therein then, and so continue it, by strengthening your Dye, and dipping till you perceive the Colour has taken well; after that rinse it in Leys, Wood-Ashes, or Oak-Bark. and so clear it with fair Water, dry it, and press it.

To Dye Silk a deep Carnation.

Take Whitegall and Alom, the Herb called Foli well dried, to the quantity of a pound, two ounces of Spanish red; four of Indian Lake, boil them in fair Water over a gentle fire, and when they come to a height of tincture, dip your Silks into them, and let them have good dippings three or four times, and the Colour will take very well.

To Dye Silk Quoins Red.

Let these be steeped well in Alom-Water, then give them a gentle heat, adding in the heating

heating Bran-Water, a pound and a half of Green weed, ſo heat it up, and put the Silk into it, but let it not ſeeth, then rinſe it in Leys of Wood-Aſhes, after that in Water, then put in your Logwood Raſped or in Powder, and ſo heat it up a ſecond time, and ſo in thrice well dipping the buſineſs will be accompliſhed.

To Dye a curious Yellow.

Take Woad, the Stalks, Seeds and Leaves, and lay them to ſoak in Wood-Aſhes Leys three hours, then ſeeth it till it is ſufficiently ſodden, and put it into a mixture of hot Water and Urine ſo heat it up, and ſtrain the Liquid part through a Sieve or Strainer, adding Verdigreaſe, and ſo boil it up with the Ley already ſod, ſtirring and well mixing the Liquor about three hours, and when it is very hot, dip three times.

To Dye Silk a Roſe-Red.

Take to every four yards and a half you intend to Dye, a pound and a half of Nutgalls, boil them in fair Water unbruiſed two hours, ſhift the Water, then put in the Silk or Linen, letting it ſoak four hours, then wring it dry, and heat it in fair Water, wherein Alom has been diſſolved, then put in half a pound of Braſil Powder, and a pound of Green-weed, and ſo by dipping in gentle heats, the Colour will heighten.

A good Black Water, for Silk or Cloth.

Take an ounce of Lamp-black, half a pound of Nutgalls, bruise the latter, and put them into a Pottle of Water, with a handful of the Filings, or Rust of Iron, heat them up, adding a quarter of a pound of Copperas, seeth it to a third part Consumption, then add half a pint of Gum water, and it will not only be for present use, but keep long, and be a very good Black.

To Dye Purple.

In this case if you dye Silk, you must take to each pound of it an ounce of Allom, and a gallon of Water, dissolving the Allom therein over a gentle fire, then put in the Silk, and let it continue there about four hours, then take Lake and Indico, each a quarter of a pound, a quart of Urine, then adding a little handful of Cochineel, heat them up into a Dye, and dip your Silks or fine Stuffs into it as usual.

To Dye a very fair Blue.

Take any Silk, Stuff or Cloth white, and soak it in Water, that done, wring out the Water very well, and add two Pound of Woold, a pound of Indico, and three ounces of Alom, give a gentle heat in fair Water, and so dip till you perceive the Colour take well.

Carnation.

Carnation.

To make this a curious right Colour, take dried Purper, soak it in Man's Urine for a Night, then take what you have to Dye, and soak in Alom Water twice, seeth the Purper in fair Water, and then set another Vessel to receive the Liquor, and dip therein.

For a Pleasant light Red.

Boil two gallons of Wheat, and an ounce of Alom in four gallons of Water, strain it thro' a fine Sieve, dissolve more Alom, half a pound, and as much of white Tartar; add three pound of Madder, to perfect the Colour, and put in your Stuff, Cloth, *&c.* at a moderate heat.

Black for Velvet, &c.

Take half a pound of Copperas, a gallon of Smiths-water, two pound of Galls, burnt Ivory, Oak Bark, and Shoee-makers Black, each an ounce, well ground, two gallons of fair water, mix them well, and set them in the Sun, or other warm place a Month, often stir it, and at a moderate warmth dip your Velvet, or other Things designed for deep blacks.

To make Red Water for Silk or Wollen, Violet, Green, Azure or Yellow.

Take two gallons of fair Water, four ounces of Brasil, and being half consumed in heating up, remove it from the fire, put in an ounce of Grains,

Grains, a quarter of an ounce of Gum Arabick, with a quarter of a pound of Allom well bruiſed, and having ſtood all Night, it may be well uſed in the Morning.

To Dye Woollen, Yarn, or Wool.

Take two pound of Wood, to every four pound of Yarn, *&c.* and two gallons of Water; put more, two handfuls of Wood Aſhes, and when it ſeeths, put in the Yarn or Wool, and let it continue half an hour, or ſomewhat more, then wring it; and put it in again, and let it ſeeth as long as before, and if it were a brown Blue, it will be a dark Green, or of a white Yellow colour.

To make Bran-water.

This is very neceſſary in Dying, and therefore you ought to know how to prepare it; do it with half a peck of Wheat-Brain, to two gallons of fair Water, over a gentle fire, and half a pound of bruiſed Alom; ſuffer it to ſtand about a Week, with often ſtirring before you uſe it.

To make Grey Florrey.

Let the Florrey be ſoaked twenty four hours, then wring it through a Cloth, and take Aſhes of Vine Sprays, and with them make a Ley, and upon a Table ſpread the Florrey, about two hours, put the Ley into three Veſſels, and ſhift the Florrey out of one into another, and before

fore you dip, put Vinegar in, and the Florrey will be well ordered, and your Colour good.

To Dye Linen with Crampenade.

To three Ells of your Linen, use a pound of the Crampenade, and a gallon and a half of Water, and so to a greater quantity proportionable; let it stand over a fire till it begins to seeth, put in at that time two ounces of Galls, and then your Linen, and when you take it out, which must be often, wring it, and put it into Allom-water; but if you would have the Colour darker, it is requisite to have a Ley of unslacked Lime, or Chalk Stones.

To Dye a good Red in Linen, Thread, or Cloth.

Soak a pound of Sam-fleur twenty four hours in two gallons of Water, suffering it to heat over a gentle fire, add two ounces of Vermillion, half a pound of Rasped Brasil, and an ounce of Allom, dissolved in a pint of fair Water, and dip, and order your materials as in other Things.

Thus Reader, have I given you a good Insight into the Mystery of Dying Silks, Stuffs, Cloths, and other Things relating thereto, which may by practice prove advantageous.

The

The Art of Perfuming.

To make Eſſence of Hypocras.

Take a ſtrong Glaſs Bottle, and put half a pint of Spirit of Wine into it, add an ounce of Cinnamon, half an ounce of Cloves, a groſs of Ginger, and as much Coriander as you can hold with your Fore Finger and Thumb well beaten, three or four Grains of black Amber, or Ambergriſe beaten in a Stone Mortar, ſtop the Bottle very faſt, and ſet it on Sand, expoſing it to the Sun for a Month: The Bottle in this Caſe muſt not be full, nor ſtand out in the Rain; this is a curious and wholeſome Perfume.

Eſſence of Amber.

Put a pint of Spirits of Wine into a ſtrong Glaſs Bottle, and beat in a very ſmall Stone Mortar, a groſs, or the eighth part of an ounce of black Amber, or Ambergriſe, put it into the Spirits, with half a groſs of the Bladder of Muſk very ſmall, ſo ſtop it cloſe, and ſet it for a Fortnight as the former, ſhading it two or three times a day, when the Sun ſhines hot upon it, but fill not the Bottle full, leſt the Spirits break it; and then let it ſtand ſtill another Fortnight, and it is done.

Roſa-Solis, or perfumed Liquor.

Put two pints of Water, and two pounds of Sugar in a Copper Pan over a gentle fire, and let

let them boil to the Conſumption of a fourth part, then put in two Spoonfuls of Orange-Flower Water, then throw in the White and Shell of an Egg, well beaten with a Whisk, and ſtir the Egg well in the Liquor with it, take it of when it boils, and ſtrain it through a bag ſeveral times, and when you perceive it well clarified, pour in of the beſt Brandy, and then Eſſence of Hypocras or Amber, and you will have excellent perfumed Solis.

Angel-Water.

Put into an Earthen Pot a quart of Orange-Flower Water, a quarter of a pound of Benjamine, two ounces of Storax, a quarter of an ounce of Cloves, half an ounce of Cinnamon, two or three bits of Calamus, ſet the Pot on a gentle fire, to the Conſumption of a fourth part, add a Bladder of Muſk, then let it cool, ſtrain it well from the Droſs, and put it up for uſe.

Milleſleur, or the Water of ſeveral Flowers.

To do this, put in a ſtrong Glaſs Bottle, a pint of Angel-water, then in a little Mortar beat twelve Grains of Muſk, then put ſeveral Flowers of various ſcents, more of the weaker than of the ſtronger, that there may be a temperature, and allay them with that Water, and when well infuſed, pour it off into a Bottle, and keep it well cloſed for uſe.

Orange-Flower Water.

To make this well, infuſe two pound of Orange-Flowers, in a quart of Water three or four hours, and ſo diſtil them in a cold Still: This Water is good for cleanſing Snuff, making Angel Water, or Perfuming Waſh-Balls, or Skins.

The Queen of Hungary's-*Water.*

Put a quart of the beſt Spirit of Wine into a ſtrong Glaſs-Bottle, and two large handfuls of Roſemary Flowers, a handful of Tyme, and half a handful of Sweet Marjorum, the leaves only and as much of Sage, keep the Bottle cloſe ſtopped, and expoſe it to the Sun a Month, and then you may diſſolve the bigneſs of a Bean of Orcanat, bruſing it with a little Spirit of Wine, and put it into the Bottle; then expoſe it four or five days more to the Sun, and and it will be of a fine red Colour, and a curious Scent.

Paſtils or Perfumes, of divers kinds.

Paſtils of Roſes made into Wax-Candles.

Take a pound of the Dregs of Angel Water, beat them when dried very fine, and ſearce them through a Hair Sieve, then put to them a handful of the Leaves of Roſes, newly gathered, diſſolve Gum Adragant in Roſe-Water, and beat the whole long together, to well Incorporate it, then rowl up pieces as big as your Finger

Finger taperwiſe, and when they are dry they will burn like a Candle, and give a very curious ſcent.

Perfumed Paſtils for Beads or Medals.

Diſſolve Gum-Adragant and Arabick in Millefleur-Water, and put into it Marchal-pouder as much as will ſtiffen it into a Paſte, rub the Moulds you caſt them in with Eſſence of Flowers, and the Beads or Medals will be of a curious Brown or Coffee colour.

Another.

Take of Frangipan and Cyprus Powders, each a like quantity, put them in Gum, wherein Millefleur-Water is the greater part, and make them into Paſtils.

To make Liquid Snuff, excellent for the Cure of the Head-ach, or againſt Apopleſtick Fits; a rare Secret.

Take Diſtilled Betony-water a pint, half a pint of Roſe-mary Flower-Water, infuſe in theſe four ounces of the beſt *Virginia*-Tobaco, finely ſifted into powder; let them ſtand warm by the Fire, or in the Sun twenty four hours, then ſqueze out through a very fine clean Cloth the liquid part, Scent it with a little Ambergriſe, and a very ſmall quantity of Muſk, drop into it three or four drops of Chymical Oil of Nutmeg, or Cinnamon, ſhake it well when the Settlings are taken off, and keep it in ſmall, cloſe

cloſe Vials for uſe, ſnuffing or ſpirting up a very ſmall quantity at a time into your Noſtrils; the Scent of it without ſnuffing up, remedies an ordinary Head-Ach.

Coſmeticks, or Curious Receipts for Beautifying the Face, Hands, or any Part of the Body.

Benjamin-Water, an excellent Beautifier.

Take a pint of good ſtrong Brandy, a pint of Spirit of Wine, half a pound of Benjamine, and a quarter of a pound of Storax, an ounce of Cinnamon, and half an ounce of Cloves, and four Nutmegs; beat the Spices and Benjamine, and putting them into the Liquids, ſtop them up cloſe in a ſtrong Glaſs Bottle, and let it ſtand upon Sand in the Sun, in the heat of Summer a Month, and then pour it off, and clarifie it.

This cleanſes the Skin of Morphew, Tann'dneſs or Sun-burning, and cauſes a delicate Complexion, as do's the Queen of *Hungary*'s-Water, which I have already taught you to make.

To prepare Spunges for the Face.

Having choſe the beſt and ſmootheſt Spunge, and cut off what is ſuperfluous, ſoak it, changing the Water till it looks clear, then dry it, and dip it in Orange Flower or Angel-Water, pour over it a little Eſſence of Amber, then

ſqueeze

squeeze it but a little and let it dry, and it will be for your purpose, in Cleansing and Beautifying the Skin, far beyond the use of Linen.

To cause a Fair, Clear Complexion.

Distil Fumitory, Rosemary Flowers, and Scabious, each two good handfuls in a Pottle of White-wine, and a quart of Dew, gathered off the Grass or Corn, with clean Napkins and Handkerchiefs, and so wrung out; keep it close stopped in Glass Bottles, and wash the Face and Hands with it, as there is Occasion.

To cause a Fresh-coloured Complexion.

Take Oil of Myrrh an ounce, three drops of Oil of Sulphur, an ounce of the Oil of Sweet Almonds, mingle them well, and anoint the Face going to Bed, and the next Morning take it off with Benjamine-Water.

To make a Clear-Pale Complexion.

Distil the Blossoms of Pease, Beans, and Peaches, each a good handful, in two quarts of Whey, and wash the Face with it.

A Pomatum to Refresh the Complexion, and take off Pimples and Redness.

Take half a pound of the Leaf of Hogs Fat, work it well in Fair-water till it is very white, then put it into a new earthen Pan, put in a quarter of an ounce of Copperas, two Pippins cut in pieces without paring, mix an ounce of

the

the Oil of Sweet Almonds, and ſtrain it through a Linen Cloth into clean Water, and make it into a Pomatum, and with it anoint the Face.

To take away Freckles.

Take the Gaul of a Cock, an ounce of Rye-Meal, a quarter of an ounce of the Juice of Hemlock, an ounce of Oil of Turpentine, make them into an Ointment, and anoint the Freckles with it, and in a little time they will diſappear.

A Pomatum, to Plump the Lips and Cheeks.

Take an ounce of freſh Butter, and as much Virgin's-Wax, ſet them over a gentle Fire, and throw in black Grapes, bruiſe them with a Ladle; then put in two ounces of Orange-Flower-water; bruiſe in a Porringer, the bigneſs of a Bean of Orcanet, allay it with a little Orange-Flower-water, put them into the Pomatum, and work them up together with a Spoon, and put it up for your uſe.

A Liquid Paſt, to waſh the Hands without Water.

Take of bitter Almonds a pound, bruiſe them well in a Stone Mortar, till no Lumps remain, wet it with a little Milk, and make it into a Paſte, beat the Crumbs of white Bread with a little Milk, and put theſe with the Yolks of Eggs without a Tread into the Mortar to the Paſte; beat them up yet more, and then boil them till thick, and keep them for uſe.

To take Spots or Stains out of the Face, Hands, or any Part of the Body.

Take Litharge of Silver an ounce, the Juice of Limon and a Sea-Onion, each a spoonful, mix these with a quarter of a pint of White-Wine-Vinegar over a gentle Fire, and apply a Rag dipped in them to the Spot, and often doing, it will remove it.

To Whiten the Teeth like Ivory.

Take bruised Coral and Pumice Stone, finely sifted, and by rubbing the Teeth well with them, they will be as white as those of Infants.

To make Hair Grow and Curl.

Take the Ashes of Fern roots a handful, as much of those of the Vine, and make a Ley with them in Ox Urine, boil in it a handful of the Tops of Hyssop, and wash the Ends and Roots of the Hair with it, or the Bald place, and the Hair will immediately Grow and Curl.

To take Spots or Stains out of Silk, Stuffs, Woollen, Linen; also Pitch, Tar, Rosin, Wax; and to recover Faded Silks, or Linen.

To take Spots or Stains out of Silk.

Take an ounce of Flax-Seed, bruise it well in two or three spoonfuls of the Juice of Limon,

add a quarter of an ounce of white Lead, and as much of burnt Bone, mix them over a gentle fire, to a thickneſs, lay them on the Strainer.

To make a Soap that will take Greaſe, Spots, or Stains out of Cloth, Silks or Stuffs.

Burn a pound of Roach-Alom, and finely pouder it, add to it half a pound of the Root of an Herb, called Florence-flame, then a new-laid Egg, and two pound and a half of Cake Soap, bruiſe and mix them well together, that they may be made up with fair Water into Balls; then firſt waſh the place Stained or Spotted with fair warm Water, ſcrape the Soap moiſt on it, and waſh it out, and in three or four times thus doing, the blemiſhes will diſappear.

To take Spots out of Linen.

Take two ſpoonfuls of the Juice of an Onion, and as much of Lime-Juice. wet it two or three times. as often drying it by a Fire, waſh it immediately in a good Laver, and it is done.

A good Ley to take out Spots or Stains.

Put half a pound of Soap-boilers Aſhes into two pints of Water; let them remain three days with often ſtirring, then pour off the clear Ley. and mix it with Fuller's Earth. and lay it thick on the place, drying it in the Sun, or by a Fire, and in two or three times doing, it will effect your deſire.

To

To take Spots or Stains out of Coloured Silks, Stuffs, Linen or Woollen.

Take Pumice-Stone and grind it to pouder, put to it ſharp Vinegar and Fuller's-Earth, let it lie on and dry, then waſh it out with Milk, and the Flower of Almonds.

A Way to take out Tar, Pitch, or Roſin.

Dab on this Oil of Turpentine, let that dry, and put on more, and the third time when it is dried you may rub out the Pitch, *&c.* for it will crumble like Dirt.

To take out Oil, or Greaſe.

Mix burnt Bone and Fuller's Earth with a little White Wine, and Plaiſter them on the Spot, dry it by the Sun or Fire, and it will ſuck out all the Greaſe in once or twice doing.

Sweet Pouders or Perfumes, *&c.*

To make groſs Pouder Ala Marchale.

Take of Iris ſixteen ounces, died Orange-Flowers twelve ounces, Coriander four ounces, a pound of Provence Roſes, two ounces of Angel-Water dregs, an ounce of Calamus, two ounces of Souchet, half an ounce of Cloves, beat them well one after another in a Mortar, mix them, and finely ſift them into one incorporated Pouder.

Pouder of Jeſſimine.

To make this, mix about a thouſand ſprigs and flowers of Jeſſimine, amongſt twenty pound of fine Starch, in a cloſe Box, lay them even, making a Bed of Flowers, and a Bed of Pouder, and let them lie twenty four hours without touching, then ſhift the Flowers, and put freſh ones the ſame quantity for three days, and the Pouder will be well ſcented.

Pouder of Musked Roſes.

To do this well, you muſt put the Musked Roſes into the Powder, and leave them there twenty four hours, in a cloſe Box, ſo ſhift them three times, and they will give an excellent ſcent.

Pouder of Orange-Flowers.

Mix a pound of good ſcented Flowers with twenty pound of Starch, or Rice grounds, mingle them, and ſift them twice a day at leaſt, for theſe are ſubject to heat, and in twenty four hours you muſt ſhift the Flowers, and put the ſame quantity of freſh ones in, and ſo till there is a good ſcent, keeping it always cloſe, unleſs when you uſe it.

Pouder of Violets, or Iris.

In this caſe, beat the Iris, and paſs it through a Sieve, mingle it with the Pouder, and it gives the natural ſcent of a Violet.

Pouder

Pouder of Amber.

Mix Jeſſimine, Roſe, and Muſk Pouder together, each a like quantity, then mix with them the eighth part of an ounce of the Eſſence of Amber; then ſift the Pouder, but break not the Lumps made by the Eſſence till dried, then ſift them in, and mingle them well; and in this manner with Flowers, Eſſences, *&c.* you may make what Scent you pleaſe, Starch being the Ground of theſe Hair-Pouders, which ſucks the Scents, and contains it a very conſiderable time for uſe.

Waſh-Balls Perfumed, *&c.*

Common Waſh Balls, to make them.

Take a pound of white Cake Soap, ſcrape it, and beat it well in a Mortar; take out the Crumbles that are not well incorporated, and put in a pound of Starch well poudered, an ounce of the Eſſence of Orange, half a pint of Macanet-Water prepared, ſtir them gently with a Peſtle, then beat till they are all well mixed, make the Paſte up into Balls, and let them dry.

Waſh-Balls of Neroli.

Take eight pound of Cake-Soap well cleanſed, put to it when ſcraped, as much of Roſe or Orange-Flower, as will well temper it, ſtirring it twice a day, the better to ſoak; then having beaten it well, put in a pound of Lab-

danum in Pouder, and two ounces of Neroli, mix them into a Paſte, and ſo make them into Balls.

Bolognia Waſh Balls.

Take three Bundles or Boxes of theſe Balls, beat them, and dip them in Angel-Water, as much as will well wet them, add half a pint of Benjamin-Water, make two equal Cakes of the Paſte, by well beating, then beat very ſmall two drams of Muſk or Civet, with two ounces of Balm of Peru, dropped in by degrees; add to theſe the groſs Eſſence of Amber, and ſome Eſſence of Cloves, and ſome Cinnamon, mix theſe with the Paſte, make it into Balls, and keep it for a very curious Perfume; and in this nature other Waſh Balls, or Paſte may be made, and perfumed with various Scents.

Sweet Bags, to make.

Take of Common-Roſe-Leaves twelve ounces, Lavender-Flowers a pound and a half, Sweet-Marjoram-Leaves twelve ounces, four ounces of the Leaves of Myrrh, ſix ounces of Tyme-Leaves, four ounces of Mellilot-Leaves, one of Roſe-mary, two of Cloves, one of Muſk-Roſes, a good handful of Citron and Orange-Flowers; put theſe in a Pot, making a Ley of Leaves and Flowers, and another of Salt, then ſtop it well, yet every other day, ſtir it with a ſtick, expoſing it to the heat of the Sun in Summer, but not in the Rain, and fill your Sweet-Bags with theſe, and Pouder.

To perfume Gloves, Fans, or Skins, with Flowers, &c.

Grind on a smooth clean Marble-Stone, two drams of Civet, add three drops of the Essence of Orange-Flowers, and other Flowers, made with Ben-Oil, add more, a few drops of Millefleur-Water, grind by it self Gum-Adragant, about the bigness of a Hazle-Nut mixed with Orange-Flower-Water; after that, mix your Civet, dropping a little of the Millefleur-Water; so do till all is well mixed, then put your composition into a Mortar, and pour more Water, stir it till it comes to a quarter of a pint, lay it very even on your Gloves, Skins, *&c.* dry them in the Air, open, and order them for Colouring, and by this Rule, you may Perfume them with any Scents.

Roman *Gloves, how to Perfume.*

Grind on a fine Marble, a dram of Civet, with a few drops of Essence of Orange Flower-Water, then mix Gum-Adragant, of the bigness of a Hazle Nut, in other Orange-Flower-Water, then warm a little Mortar, and infuse in it a dram of Amber, with a few drops of Orange-Flower-Water, pouring more to it by degrees, till all come to about a quarter of a pint, then mix again the Civet, with some drops of the same Water, adding, till the whole comes to half a pint, and then Perfume your Gloves, Skins, or Fans with it.

How to Colour and Perfume Gloves, at once.

Chuſe what Colours you like beſt, and grind them on a flat Stone, with a little Ben-Oil, or the Eſſence of Orange-Flowers, or Jeſſimin, pour Orange-Flower-Water by degrees, ſtill grinding, then put to the Colours Gum-Adragant, diſſolved in Orange-Water, then being well ground, pour all into an Earthen Pan with more Water, taking the Colours, being not too thick, and then dip a ſoft Bruſh into it, and rub over Gloves, Skins, or Fans; let them dry in the Air, then ſmooth and order them as is requiſite; grind a bit of your Colour with a little piece of Gum-Adragant, infuſed in Orange-Flower, and very clear, rub them over with this, and it will keep the Scent a long time.

Several ſorts of Snuff, Solid and Liquid, how to Make and Perfume them.

To Prepare and Cleanſe Snuff.

The Ground of it is Tobacco dried into Pouder, that it will ſift curiouſly through a fine Sieve, and then it requires briefly to be waſhed and cleanſed in the following manner.

Soak it in Fair Water twenty four hours, then take it out, and ſqueeze it very well in a Cloth, dry it in the Sun on Wicker Hurdles, over which a fine Linen Cloth is laid, keeping it turning, and ſtirring almoſt continually; being

ing dried, ſprinkle Sweet-Water on it, as Orange, Jeſſimine, Angel, or the like, then dry it again and wet and dry it three times, by which means it will be capable to take the impreſſion of any Scent, by being ſprinkled on it, or infuſed; but if you deſign to colour it Red or Yellow, it muſt be done before it is ſcented, eſpecially for Flower-Scents, it may be coloured with Red or Yellow-Oker.

To Perfume Snuff with Flowers.

The Flowers moſt uſed in this, are Jeſſimine, Orange, Musk, Roſes, Common-Roſes, Tube-Roſes, *&c.* But theſe if uſed naturally, muſt be helped with the Eſſence of other Flowers, or the ſame; to do this, get a wooden Box, large enough for your purpoſe, lined within with dry White Paper, lay a laying of Snuff, and a laying of Flowers, and let them ſtand twenty four hours, then ſearce or ſift the Snuff, to take out the Flowers, and renew them with other Flowers; continue it four or five days, then ſeparate it, and keep it in cloſe Boxes in a dry place for uſe.

Snuff, with Spaniſh-Perfume.

Take a pound of Snuff that has been Perfumed with any ſort of Flowers, beat in a Mortar twenty grains of Musk, with a little lump of Sugar, ſo put in your Snuff by degrees, gently ſtirring it about, and when the Mortar is full, empty it gently, and cover it to keep in the Scent as much as may be, then put in ten

grains of Civet, put in the Snuff again, and mingle them well, and so keep it dry for use.

How to take Spots or Stains out of Scarlet or Velvet.

To do this, take Soap Wort, a Herb of that name, bruise it, and strain out the Juice, add a little Black Soap, mix them well to a moderate thickness, daub over the stained or spotted place, wash it out with warm water, and suffering it to dry, do it again twice or thrice, and it will effect your desire.

To take Iron-Moulds, or Spots, out of Linen.

Dissolve the Pouder of Burnt Alom, in the Juice of Limon, wet the place with it, and dry it with the Back of a Spoon, in the fore part of which is a live Coal, and in doing it five or six times, the Iron Mould, or Spot will wash out.

To Recover Faded Linen.

Heat a gallon of New-Milk over the Fire, and scrape, a pound of Cake Soap into it, and when the Soap is well dissolved, boil the Linen well therein, and then clap it into a hot Laver of Water and other Soap, wash it out well, and it will recover its Strength and Colour.

To make Pouder-Inks, as the *London*-Pouder-Ink, *&c.* and Liquid Shining Japan-Ink.

To make that which is called the London-*Pouder-Ink.*

Take ten ounces of the cleareſt Nut-galls, bruiſe them and ſift the Pouder very fine, then White Copperas two ounces, Roman Vitriol three ounces, Gum-Arabick, or Sandarack an ounce, bruiſe and ſift them very fine, ſo that though they appear White, a little being put into Water, will in a little time turn it, and an ounce of the Pouder will make a pint of very Black-Ink.

To make Japan, or Shining-Ink.

Take Gum-Arabick and Roman-Vitriol, of each an ounce, Galls well bruiſed a pound, put them into Rape Vinegar, or Vinegar made of clear Small-Beer; let them remain in a warm place, often ſtirring, till the Liquor becomes black, then add to a gallon an ounce of Ivory-Black, and a quarter of a pint of Seed-Lac-Varniſh, and it will be a curious Black Shining Ink.

A Pouder-Ink to rub on Paper, and Write on.

Bruiſe about twenty Nut-galls, and half an ounce of Roman Vitriol, as much Gum-Arabick,

bick, and Gum-Sandarack, mingle these finely together, when well bruised and sifted, to a Powder, rub the Paper hard with it with Cotton Wool, and polishing it with a piece of Ivory, write with Water, and in a little time, the Letters you write will appear a fair Black, as if written with the best Ink.

Receipts for the Cures of sundry Diseases and Grievances, Incident to Men, Women and Children.

For the Ague.

Take a little handful of the Tops of Rue, boil them in a quart of White Wine, give the party half a pint, four times successively, upon four Cold Fits approaching, if the Ague last so long, and put the party into a warm Bed, this must be drank as hot as the Patient can drink it.

To Ease and Remove the Pains of the Gout.

Take two ounces of Sarsaparilla, cut it small, and boil it in a quart of Small-Beer, till a third part be consumed, drink it as hot as may be, and about a quarter of an hour after, bathe in with your warm hands a mixture equally of the Spirit of Wine, and the finest Oil of Turpentine, where the afflicting Pain is, and it gives present ease, and in a short time makes it cease.

For

For Pains of the Teeth.

Take Henbane Seed, and Hyſſop-Seed, bruiſe them finely together, mix them that they may ſtick well, with a little Oil of Spikenard, if hollow, ſtop the Tooth with theſe, and a piece of Lint dipped in the Oil; if not, tie up the quantity of a large Pea, in a fine thin Rag, and lay it to the Root of the Tooth, and the Pain will ſoon ceaſe.

To take away Corns.

Cut well and cloſe, take out as much of the Coar as you can; then take Burnt-Alom, and the Pith of an Oiſter that ſticks to the Shell, dried and poudered, incorporate theſe with a little Venice-Turpentine, put into the hollowneſs, if there be any, a little Tent of Lint dipped in the Oil of Cloves, and lay on the other as a Plaſter, and it in a Weeks time with thrice renewing, takes away the Corn, making Fleſh ariſe to fill the hollowneſs.

For Blaſts, Burns, or Scalds.

Take Ointment of Tobacco a quarter of an ounce, Pidgeons, or Pullets Dung half an ounce, Sallad Oil two ſpoonfuls, Snow-Water the like quantity, Cream a quarter of a pint, and the White of a New-laid Egg, beat and bruiſe theſe till they become a pliable Ointment over a gentle fire, ſpread them on a fair Cloth, and lay it to the afflicted Part, and in three or four times renewing, it will take out the fire,

and

and put the Party in an easie way of Recovery.

For the Stone or Gravel, in the Reins or Bladder.

Take green Parsley, if it can be got, that is running to Seed; if not, other Parsly, stamp it, and squeeze out an ounce of the Juice, and as much of that of a very hard Onion; take a little handful of Sloes, bruise them that the Stones may break, mix these with a pint of White-wine, and boil it well, then add to the strained Liquor, a quarter of an ounce of calcined Crabs-Eyes or Claws, and let the Patient drink fasting half of it, and move up and down swiftly, and within a quarter of an hour the rest, and it will speedily afford ease, and bring away Sand and Gravel, if it remain in the Ureters, or Neck of the Bladder or Yard.

Thus Reader have I made good my Promise in this crouded Work, full of variety, and must now proceed to the Second Part.

THE

THE SECOND PART.

CHAP. I.

To make Glass of Chrystals, of all the several Colours, as Greens, Gold, Yellow, Black, Garnet, Sapphire, Ruby, Amethyst, Chrystal, Pearl, Turquois, and many other Oriental Colours; the ground Work of making Glass, and to prepare the Materials.

The Foundation of the Work for Glass-making.

THE first thing to be considered in this, is the Pulverine of Rochetta, which is the Ashes of certain Herbs growing in the *Levant* and *Syria*, making a whiter Salt than Barrilla of *Spain*, and more excellent for fair and beautiful Chrystal.

To extract this Salt, pouder the Ashes, and sift them very fine, and to know how these Ashes prove, touch them with your Tongue, to try the

the more or leſs Saltneſs, or make an Eſſay in a Melting-Pot, to know whether they bear much Sand, or Tarſo, a thing uſual in this Art.

Having tried your Aſhes, ſet up Braſs Coppers, with their Furnaces in Imitation of thoſe uſed in Dying, greater or leſſer, as the quantity of Salt intended to be made requires; fill them with fair Water, and let your Fuel be dry Wood, and when the Water boils, put in the Pulverine, in a juſt quantity and proportion to the Water, and boil it with a continued Fire, till the third part of the Water be conſumed, mixing them well at the bottom with a Scummer, that the Pulverine may well incorporate with the Water, and all its Salt be extracted, then put in other fair Water, and boil it till half be conſumed, and ſo there will be a Lee impregnated with the Salt, but to encreaſe the quantity of the Salt, and have it whiter, boil in the Water, before you put in the Pulverine Twelve Pound of Copper of Tartar, of Red-Wine, calcined to a black Colour only.

When two Thirds of the Water is conſumed in boiling, ſlacken the Fire, ſeaſon earthen Pans with fair Water, ſix Days, then put the Lees into them with large Braſs Ladles, as as alſo the Ice you find in the Coppers, with the Aſhes, and having filled the Pans, let them ſtand Ten Days, and in that time the Aſhes will be at the bottom, and the Ice remain very clear, which muſt be taken gently off with Braſs Ladles, that the bottom rile not; put it in other Pans, and let it ſtand Two Days, that being purged from Setlings, it may be more clear and

and Limpid, which will be effectual when thrice ſettled, and ſo work till you have Materials ſufficient.

To ſtrain the Lees, and extract the Salt, in the firſt Place, let the Coppers be well waſhed with clear Water, ſo fill them with the refined Lees; let them boil gently, and fill the Coppers with the Ice, till it thicken and ſhoot its Salt, which uſually happens about the beginning of Twenty four Hours, ſo that on the ſuperficial part, Salt will appear like white Threads, or Spider's Webs; then ſink a Scummer, full of Holes, to the bottom of the Copper, and then the Salt will fall upon it, and now and then take it out, ſuffering the Lees to run well off, and put the Salt into Tubs, or Earthen Pans, by which means the Ice may the better drain; ſave the Liquor that drains from it, to put into the Copper, and dry the Salt; ſo continue to do till all the Salt be gotten out of the Copper, and when the Salt is well drained and dried, put it into Wooden Veſſels, which will ſuck up the Moiſture; and ſo from Three hundred Weight of Aſhes, Eighty or Ninety pound of Salt may be gotten proper for this curious Work, which being well dried, beat it groſly, and put it into the Calcar, a kind of a calcining Furnance, to dry with a gentle heat; rake it over with an Iron Rake, when it is dry, take it out, pound it well, and ſift it, that the biggeſt Pieces exceed not Grains of Corn; when it is ſo ordered, it muſt be kept clean from Duſt or other Annoiances to make Frit of Cryſtal, which is made in the following manner.

To make Frit of Chryſtal, or Bollito.

To make this, conſider if you would have your Chryſtal fair, that you procure the fineſt Tarſo, a kind of hard and moſt white Marble, found in *Tuſcany*, beat it ſmall with an Iron Peſtle, in a Mortar, and ſift it as fine as Flour, and put Two hundred pound of it to about One hundred and thirty pound of Pulverine Salt, ſo ordered, and mix them very well together; then put them into a Calcar, at firſt well heated for an Hour, make a temperate Fire, and rake the Frit with an Iron Rake, that it may be well incorporated and calcined; then encreaſe the Fire, raking the Frit for Five Hours, and raiſing the Fire by Degrees to a ſtrong one, and when it is ſufficiently done, take out the Frit, lay it on a Floor, cover it with a Cloth, and keeping all Duſt from it, it will be as white as Snow; keep it then in a dry Place, that the Salt relent not, for if it do, and run from the Tarſo, it will not vitrifie, and if it ſtand Three or Four Months, it will be the better to put in the Pots, and ſoon wax clear, and be fit to prepare a curious Chryſtal Glaſs.

To make common Glaſs.

Frit of Pulverine makes an excellent white and common fair Glaſs. Frit of Rochetta makes that between Chryſtal and common Glaſs, as much Maganeſſe well prepared, muſt be uſed in Common as Chryſtalline Glaſs, and theſe, that you may have them the fairer, muſt once at leaſt

least be cast into Water, and if you would have them very fair, oftener, as you see convenient. and then you may work them into what Vessels you please; and to make them whiter, let them be well calcined, that there may be the fewer Blisters, and particularly observe, that if to each of them themselves you put upon the Frit the Proportion of Twelve pound of Salt of Tartar, purified, to a Hundred Pound of Frit, the Glass will be more pliable to work, and fairer than ordinary; and herein Note, That you put in the Salt of Tartar when the Frit is made, and then mix the Sand or Tarso with the Rochetta or Pulverine well sifted, and make them of a Frit as before.

How to purifie Salt of Tartar for this Work.

Take the Lumps of Tartar of Red Wine, calcine it in Earthen Pots till it becomes black, and its oily Quality consumed, and it begins to turn white; but let it not come to perfect Whiteness, because then its Salt will be nought; put it then into Earthen Pans, full of fair Water, heated also into glazed Earthen Pots; make it boil over a gentle Fire, that a fourth Part of the Water may in Two Hours be evaporated, then take it off to cool, and when the Water is become clear, decant it into other Vessels, and it will be a strong Ice; then put into the Pans more common Water upon the remainder of the Tartar, and let them boil as before, till the Water becomes no more Brackish.

This done, filter these Waters, and impregnate with Salt; put the filtered Ice into Glass Bodies,

Bodies, to evaporate in the Aſhes of the Furnace at a gentle Heat, and in the bottom a white Salt will remain, which diſſolve in warm Water, and when it is Two Days ſettled, evaporate it at a gentle Heat, in Glaſs Bodies, and there will be a whiter Salt remain at the bottom than the former; diſſolve this again, and filter and evaporate it after Two Days ſettling, in the manner as before. Do all theſe things Four Times, and the Salt will be of the whiteneſs of Snow, which Salt, mixed with Rochetta and Pulverine, mixed with a ſufficient quantity of Tarſo, will make an excellent Frit, that put in the Pot, yields Chryſtalline and common Glaſs, much fairer than that which is made without this Salt of Tartar.

Of Colouring Glaſs, and firſt a curious Green.

Having given you the ground-Work for white Glaſs, the moſt exceilent Way, I come now to revive that excellent Art of Colouring Glaſs.

To make a curious Green in Glaſs, to a Pot of Ten Pound of the Metal of white Glaſs, *viz.* half of Chryſtalline, ſeveral times paſſed through Water, and the other half the common white Metal of Pulverine. Take Four Pound of the common Frit of Pulverine; with theſe mix Three Pound of Red-Lead, unite them well together, and put them into a Pot, and all of them in a few Hours will be well purified, then caſt the Metal into Water,

and

and take out the Lead, so return the Metal into the Pot; let it purifie for the space of Twenty four Hours, at what time, if you put in the Colour, made Chimically with the Pouder of the *Caput Mortuum*, of the Spirit of *Vitriolum Veneris*, adding a small quantity of *Crocus Martis*. the Colour will be perfected, and there will arise a marvellous pleasant Green, resembling the Oriental Emerald.

Another curious Green, Fair and Shining.

To do this, put Chrystalline into a Pot that has not had any Maganese in it, and which has once or twice passed through Water to take out the Saltness, and to it put in half as much Common, or white Metal, made of Pulverine, at several Times, and when it is well mixed and purified, put to every Hundred Pound, Two Pound and a half of thrice calcined Brass, made in the Arches of the Furnace, with Plates of Brass, and with this mix Two Ounces of calcined *Crocus Martis*, calcined with Brimstone, and reverberated; and these Pouders being well mixed together, put them to the Metal, and if it has any Blueness, add a little more of the Pouder of *Crocus Martis*, and it will take it away and work it well with the Metal, according to Art, and there will be a wonderful Green of the Burnet.

A fair Sea Green in Chrystal.

Put about Sixty Pound of Chrystal Frit in a Pot well scummed, and not cast into the Water, and

and to the Metal put a Pound and a half of the Scales of Braſs that come off by hammering the Fire when you have well calcined them, Four Ounces of well-prepared Zaffer, the Pouders being well mixed together before they are put into the Chryſtal, put them in at Four times, mixing well the Pouders with the Metal Two Hours, and then give it another Mixture, as is uſual in this Work, and make a proof of it till the Colour has taken. A beautiful Sea-Green, may be made in this manner, with half Chryſtal, and half Rochetta.

A Cheap Green.

Take the like quantity of Zaffer and Braſs, prepared as before, put them in the ſame Manner and Form to the Rochetta of the *Levant*, as alſo that of *Spain*, neither of them having had any Maganeſe, but been well ſcummed, and not paſſed through Water, uſing the Rules as aforeſaid in the Green Chryſtal, and by this means it will receive a very fair Colour, and may be afforded at a very cheap Rate.

A Gold Yellow in Glaſs.

To do this, take Rochetta Frit one part, Chryſtal Frit two parts, being both made with Tarſo, mix them well together, and to every Hundred Weight, take of Tartar in Lumps, well beaten, and ſifted fine, with prepared Maganeſe, each One Pound, mix the Pouders well with themſelves, and then with the Frit ſo put them into the Furnace, and let them ſtand Four Days

Days at an ordinary Fire, by Reaſon they will riſe much, and the Metal being purified, and the Colour well mixed with it, work it into what you think convenient for your uſe. In this Caſe you muſt obſerve to put your Colours in at ſeveral times, that the Colour may take the better, and you may heighten or leſſen the Colour, the more or leſs you put in. But if you would have a fair good Colour, let the Frit be all Chryſtal.

Glaſs, a Garnet Colour.

Take a like quantity of Rochetta and Chryſtal Frit, and to every Hundred Pound add One Pound of Maganeſe, and an Ounce of prepared Zaffer, mix them well together before you put them to the Frit; put them into the Pot by little and little. and at the end of Twenty four Hours, when it is well mixed, and of a pure Colour, work it into Form.

To make Glaſs of Sapphire Colour.

Add a Pound of Zaffer to every Hundred Weight of Rochetta Frit; let the Zaffer be well prepared, and to every Pound of it add an Ounce of Maganeſe, mix the Pouders well together by themſelves, and after that with the Frit; put them thus mixed into a Furnace, melt and purifie them, and when it is pure and well coloured, work it, and the Colour will be fine and durable.

To make Glaſs of the Colour of Amethyſt.

Take the Chryſtal Frit, made of the fineſt Tarſo, Maganeſe well prepared a Pound, Zaffer, done the like, one Ounce and a half; firſt mix theſe Pouders well together by themſelves, and then with the Frit, not with the Metal in the Pot. The Proportion is a Pound of the Frit to an ounce of the mixed Pouder, and when it is pure and well coloured, work it as you pleaſe.

A Sapphire Colour, very fair.

Inſtead of Rochetta take Chryſtal Frit, then add the ſame quantity of Pouder, as to the other Sapphire, and order it in all Points the ſame way, and you will have a fair ſhining Sapphire coloured Glaſs.

To make Glaſs a very curious Black.

To do this, take the Frit of Chryſtal and Pulverine Twenty Pound each, Calx of Tin and Lead Four Pound, mix them well together, put them in a Pot, into a Furnace well heated, and the Metal being pure, take Steel well calcined, and poudered Scales of Iron falling from the Smith's Anvils, each an equal quantity, pouder and well mix them, put Six Ounces of this to the Metal; let them ſtrongly boil, and then ſettle Twelve Hours, mixing ſometimes the Metal, and then work it, and it will be a very fair Velvet Black, fit for all Devices that require it.

To make Glass, another fine Black.

Take of Rochetta Frit, about Two hundred Pound, to this put Two Pound of Tartar, and Six of Maganese, both in Pouder, and well mixed; then put them leisurely into the Furnace, and when they are melted and purified, which will be at the end of Four Days, then mix and wash the Metal, which will make a very curious Black.

To make Glass a very deep Red.

Take Twenty Pound of Chrystal Frit, One Pound of broken Pieces of white Glass, and Two Pound of calcined Tin, mix them together, and put them into a Pot to run and purifie, and when they are melted, take calcined Steel, Scales of Iron falling from the Anvil, of each a like quantity, grind them well together, and when the Metal is purified, put leisurely an Ounce of these to it, so mix them well, and let them incorporate, which may be well done in Five or Six Hours; but beware you put not in too much Pouder, for that will make the Metal Black, whereas the Colour ought to be transparent, and not *Opacous*, of an obscure Yellow. When you find it so, forbear puting in any more Pouder, but put in Three quarters of an Ounce of Brass, calcined to Redness; let it be well ground, and in Three or Four Times mixing it will be as Red as Blood, for which Reason, make frequent Essays, to try the Goodness of the Colour; then take it in

the Nick, or it will lose its Colour, and become Black; and that it may not do so, leave the Mouth of the Pot open; let it not stand above Ten Hours in the Furnace, and suffer it to cool as little as possible; and if you perceive the Colour fade, which sometimes it will do, put in some Scales of Iron, which will reduce it; and by Reason this is one of the nicest Colours to be made, be careful in every thing especially putting in the Steel and Scales, as also in working it.

To make a fair Milk-white Glass, called Lattimo.

To do this curiously, take Chrystal Frit Twelve Pound: calcined Tin and Lead Two Pound, mix them well together, then take Manganese, prepared, half an Ounce, incorporate them well, and put them into a Pot heated; suffer them to stand Twelve Hours, that the Materials may be well melted, and so working them, it will come a fair White, very pleasant to the Eye.

To make Glass another fair White.

To do this, take about Four hundred Pound of Chrystal Frit, and Sixty Pound of Tin calcined Two Pound and a half of Manganese prepared, Pouder them well, and mix them with the Frit, and set them in a Pot in the Furnace, and let them refine Eighteen Hours, and then it will be purified; then cast it into Water, and purifie it again in the Furnace, and

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make an Eſſay, and if it be too clear, add Fifteen Pound more of calcined Tin, mix it often well with the Metal, and at the end of Twenty four Hours it will become exceeding White, and ſo work it. You may make this in the ſame manner, with Rochetta Frit, but not ſo pure a White.

To make Glaſs Peach-Colour in White.

Work this as the fair Milk-white, or *Lattimo*, only with a little more Manganeſe, and it will be of a Peach Bloom Colour; but take the exact time to work it, when it has its full Colour, leaſt it loſes it.

To make Marble-colour'd Glaſs.

This is eaſily done, obſerving well the Rule, which is to put Chryſtal Frit in a Pot, and when it is melted, before it is purefied, work it, and it produces a fine Marble-Colour.

To make Pearl-Colour.

Melt and purifie Chryſtal, and put to it, at Three or Four times, Tartar calcined to Whiteneſs, or ſo many times, that on the Eſſay you find the Chryſtal has taken a Pear-Colour, ſo work it off ſpeedily, leaſt the Colour ſhould fade.

Frit of Natural Chryſtal, &c.

To make this, you muſt have natural Chryſtal, and calcine it in a Crucible, extinguiſhing it Eight times in fair Water, covering it ſo

close, that no Ashes or Dirt get in, and when the Chrystal is well calcined, dry it, and grind it to an impalpable Pouder; mix this Pouder with Salt of Pulverine, made in a Glass Body, and make Frit with them, observing the Quanties, Rules and Proportion of Maganese as in other Frit seting it into the Furnace, and at due and oftentimes casting it into the Water and purifying it, work it as other Chrystal, and you will make a curious Matter of it.

To make Glass Blue, or Turquois.

Take that Sea-Salt that is called Black, or Gross Salt, put it into the Calcar, or Furnello till all the Moisture be evaporated, and it becomes White; beat it well into a fine Pouder put it into a Pot of Chrystal Metal, died with the Colour of Sea-Green, made as I have directed, put in the calcined Salt by little and little, and mix it well with the Metal, till the Sea Green loses its Transparency and Diaphanety, and takes Opacity. For the Salt once vitrified makes the Metal lose its Transparency, giving it a Paleness, and by little and little encreases to a Sky Colour, or that of a Turquois Stone, and when it has taken this Colour, it must be speedily worked, or the Salt will be lost by Evaporation; and if the Colour be lost, you must begin your Work again with fresh calcined Salt. And now, before I go further in this curious Art, known but to a few, having made mention of many things useful in Glass Work for the better Understanding of the Reader I shall give a more particular Account of them.

To prepare Zaffer, useful in many Colours.

Take this in gross Pieces, let it stand Twelve Hours in the Furnace, in Earthen Pans, so put it into an Iron Ladle, to be heated red-hot in the Furnace, and taking it thence, sprinkle it with strong Vinegar, and being cold, grind it on a fine Porphyry-Stone, and wash it in glazed Earthen Vessels, with warm Water, suffering the Zaffer to settle at the bottom, and then decant it gently off, which will take away the Dross, and leave what is pure, so that the Tincture will remain in the bottom; and thus prepared and purified, it will tinge more excellent than at first, making a Limpid and clear Tincture, which well dried, may be kept in close Vessels for use.

To prepare Manganese for colouring Glass.

Take that of *Piemont*, as being the best of all others, put it into Iron Ladles, and in all the rest proceed as in the Zaffer.

To make Ferretto of Spain *to colour Glass.*

To do this, calcine Copper, that the Metal being opened, may communicate its Tincture to the Glass, *viz.* Take thin Plates of Copper, of the bigness of a *Florentine*, and have one or more Goldsmiths melting Pots; make a Layer of Brimstone, pounder'd in the bottom of one of these, then a layer of Plates, and over them another Layer of Pounder, and in this order fill

the Pot, which is otherwiſe ſaid to make a SSS Cover. Lute it well and dry the Pot, then put it into an open Wind Furnace, amidſt burning Coals; give it a ſtrong Fire for Two Hours, and when it is cold, you will find the Copper calcined. This Copper, beaten ſmall, and ſearſed into fine Pouder, muſt be kept for uſe.

To make or prepare Crocus Martis, *uſed for colouring Glaſs.*

This is no other than ſubtilizing and calcining of Iron. To do it, take the Filings of Iron, or thoſe of Steel, which are better, mix them well with Three Parts of Pouder of Sulphur, put them into a melting Pot, and then into a Furnace to calcine, and burn well off all the Brimſtone, ſo let it ſtand Four Hours in burning Coals, then take and pouder it; ſearſe the Pouder very fine, and put it into a Crucible, covered and luted at the top, then ſet it in the Leer of the Furnace, near the Occhio, or the Caveler, Fifteen Days, or ſomewhat more, and it will be of a reddiſh Colour, enclining ſomewhat to Purple. Keep it in a cloſe Veſſel, to be uſed in Glaſs Colours, in which it is uſed with admirable Succeſs.

To calcine Braſs, called Orpello, *or* Tremolante, *making a curious Sea-Green or Sky Colour.*

Take thin Braſs, and cut it in ſmall Pieces, ſo put it into a Crucible, covered and luted at the

the top, ſet that in a fierce Fire; let it ſtand Four Days in a great, but not a melting Fire, for if it melt, your Labour is loſt. In that time it will be very well calcined, ſo pouder it in the moſt ſubtil manner; ſearſe and grind it fine on a Porphyry-Stone, and there will be a black Pouder, which ſpread on Tiles, and keep it in a Leer, on burning Coals Four Days, near to the round Hole; take away the Aſhes that fall upon it, pouder and ſearſe it again, and ſo keep it choicely for Uſe; and to know whether it be well calcined, put it into Glaſs, and if it makes it ſwell it is right, but if not, it is not well calcined, or elſe over-burned, and then it will not Colour well.

To calcine Braſs another way, to make a Tranſparent Red.

Cut it ſmall as the former, and put it into a melting Pot, with Layings of Pouder of Brimſtone, and Metal, as in Copper; firſt ſet it on kindled Coals, then put it into a ſtrong Fire in the Furnace, to calcine for Twenty Four Hours; then pouder and ſearſe it, put it cover'd into the Furnace, on Tiles of Earth for Twelve Days to reverberate; ſo pouder, grind, and keep it for uſe, and beſide a Red, it contributes principally to the making a Yellow and Chalcedony.

A Red Colour from Braſs.

Put ſmall Pieces of it in the Arches of the Furnace, and let them be there cloſe, till they

are well calcined but in ſuch a Fire as they may not melt, and when calcined, pouder the Braſs, and the Pouder will be red and excellent in many Uſes, for colouring Glaſs. Braſs, thrice calcined, is likewiſe very excellent, and is ordered in the following manner.

Braſs thrice calcined, to make a curious Colour in Glaſs.

Put this on the Leer, or into the Furnello of the Furnace, near to the Occhio, into Pans baked, or Earthen Tiles, calcine it Four Days, and you will have a black Pouder, ſticking together; beat it fine and ſearſe it; calcine it as before, but a Day longer, and then it will not ſtick together and be of a Ruſſet Colour, and ſo the third time, but obſerve it be not too much nor too little calcined, for then it will not Colour well; and to know when it is well put it to purified Metal, it will make it boil and ſwell, and if it does not, it is too much or too little.

This makes a curious Sea-Green, and an Emerald Green. The Arabian Colour, called Turquois, a curious Sky-Colour, with other Varieties.

CHAP.

CHAP. II.

To make Glaſs of Lead, of many beautiful Colours, reſembling thoſe of the Precious Stones, as Emeralds, Topaz and others, and the Materials uſeful in the Work.

The Ground Work for making Glaſs of Lead.

THis is a very curious Art, which but a few underſtand, eſpecially as to the Colours, though it may be held the nobleſt and faireſt of all other Glaſs, yet great Caution muſt be uſed in making it, for being well made, it imitates the true Oriental Gems, which cannot ſo well be done in Chryſtal, or any other Glaſs; yet you muſt uſe great Diligence in melting it, leaſt all ſorts of Pots are broken in doing it, and ſo the Metal run in the Furnace; and the Buſineſs chiefly conſiſts, rightly in knowing how to calcine Lead, and to re-calcine it a ſecond time, for the more it is calcined, the leſs it returns to Lead, and leſs endangers your Pots.

Obſerve alſo to caſt the Metal into Water, and by that Means ſeparate the Metal from the Glaſs, even the laſt Grains of it, but it muſt be done by little and little, that the Separation may be made the better, for the leaſt Lead remaining, breaks out the bottom of the Pot, and lets the Metal fall out; and farther obſerve, that the Pots and Lead muſt not have too much Heat in the Furnace, neither muſt the Metal be

wrought too hot; and the Marble wherein it is wrought, must be of the hardest Stone, and be wetted, or else it will break and scale.

A curious Way to calcine Lead.

At first calcine it in a Kiln, as Potters use, in a great quantity, and in Two Days they usually calcine Three or Four Hundred Weight. In calcining take especial Notice, that the Kiln be not too hot but so that it may keep the Lead in continual Infusion, or otherways it will not be calcined. When it is well melted, you will observe at the top a yellowish Matter; then prepare to draw forward the calcined part with an Iron surable for the purpose, ever spreading it in the Internal Extremity of the Kiln's bottom, which ought to be of soft Stone, that will bear the Fire, and the Kiln must have a declinative towards the Mouth. When it is calcined, it must be put and spread a second time in the Kiln, that so in a convenient Heat it may reverberate, keeping it stirring with the Iron for several Hours, till it come to this second Calcination, to a fine Yellow, and well-coloured; then finely scarse it and what passes not the Searse, recalcine it with new Lead.

To make Glass of Lead.

Take Fifteen Pound of calcined Lead Chrystal Rochetta, or Pulverized Frit, according as you would make the Colours Twelve Pound, mix them exceeding well, and put them into a Pot; let them stand Ten Hours, and then cast them into

into Water, for by that time they will be well melted; ſeparate the Lead, and return the Metal into the Pot, which at the end of Twelve Hours will be fit to work.

How to work the Glaſs of Lead.

To work this into Veſſels, it will be neceſſary, before it is taken upon the Iron, to be a little raiſed in the Pot; ſo take it out, and ſuffer it to cool a little, then work it on the Marble, being clear at firſt; let the Stone be wet with cold Water, that the Glaſs may not draw away with it the Marble, and ſcale it, which without wetting it will, and ſo to the Damage of it, incorporate it into it ſelf; therefore you muſt continually wet it whilſt the Glaſs is wrought, otherwiſe, by the Marble ſticking in it, the Fairneſs and Beauty will be taken from it, do thus as often as you take the Metal out of the Pot.

This ſort of Glaſs is very tender, that if it be not cooled in the Furnace, and taken a little at a time, and held on the Irons, and the Marble continually wetted, it is next to an Impoſſibility to work it, which cauſe proceeds from the calcined Lead, that renders it ſo very tender; yet when well wrought it is an excellent Glaſs.

To make Glaſs of Lead, of an Emerald Colour.

Take Twenty Pound of the Frit of Pulverine, Sixteen Pound of calcined Lead, ſears'd both

both into Two Poudets, firſt by themſelves, and when well mixed together put them into a Pot, not too hot, for Eight or Ten Hours, and then they will be melted; ſo caſt them into Water, and ſeparate the Lead and the Unctuoſity which calcined Lead and Pulverine give it, and there will enſue a bright ſhining Colour, and in a few Hours it will run, and become very clear, then put into it Braſs, thrice calcined, Six Ounces mixing with it a Penny Weight of *Crocus Martis*, made with Vinegar, put in at Six times. This mixture, always well mixing the Glaſs at leaſt every Two or Three Minutes; let it ſettle an Hour, then mix, and take an Eſſay thereof, when the Colour is apt; then Incorporate Eight Hours, and work it into Veſſels, or other Devices.

Note, If you let it ſtand in a Pot when it hath received its Colour, till it hath conſumed all the Dregs, and is perfectly refined, it will be ſo like the natural Emerald, that the Sight can hardly diſtinguiſh one from another.

Another curious Green.

This is made in all Reſpects as the foregoing Green, with this Addition, *viz.* That there muſt here be Six Ounces of *Caput Mortuum* of *Vitriolum Veneris*, inſtead of the Braſs in the other. This is the rareſt Green that can be made any way whatſoever.

A Sky or Sea-Green, in Glaſs of Lead.

Take Sixteen Pound of the Frit of Chryſtal, ten Pound of calcined Lead, mix and Searſe them well

well together; ſet them in the Furnace Twelve Hours, and the Stuff will be melted; then caſt both it and the Pot into Water, to ſeparate the Lead; then a ſecond time let them ſtand Eight Hours in the Furnace; again caſt them into the Water, ſeparate the Lead, and again put them into the Furnace, and in Eight Hours more the Metal will be very clear; then take of Zaffer, well prepared, a quarter of an Ounce, calcined Braſs Four Ounces, mix them well, and put them in at Four Times, in Four equal Quantities, and at the end of Two Hours mix well the Glaſs, and take an Eſſay of it; then let it ſtand Ten Hours, in which time the Colour will be well incorporated, the Glaſs very well perfected, and be fit to be wrought in any Works.

A Topaz Colour in Glaſs of Lead.

Take Fifteen Pound of Chryſtal Frit, Twelve Pound of calcined Lead, mix and ſearſe them well together, and ſet them in the Furnace, but not too hot; at the end of Eight Hours put them in Water, to ſeparate the Lead from the Pot and Glaſs; repeat this twice, and add half Glaſs, of a Gold yellow Colour; let them incorporate and purifie, and it will be of the Colour of an Oriental Topaz.

Garnet Colour in Glaſs of Lead.

Take Twenty Pound of Chryſtal Frit, and Sixteen Pound of calcined Lead, ſearſe and put them into a Pot, add to them of Manganeſe

Three

Three Ounces, of Zaffer half an Ounce, both well prepared, and let them ſtand Ten Hours, caſt them into Water, and ſeparate the Lead, then put them again into the Furnace, and let them purifie Ten Hours, ſo mix them, and make an Eſſay, and when it is perfected, and the Colour of a fair Garnet, work the Metal into what Form you think moſt convenient.

To make a Yellow Gold Colour in Glaſs of Lead.

Take calcined Lead, and Chryſtal Frit, each Sixteen Pound, mix and ſearſe them, then add thrice calcined Braſs Six Ounces, *Crocus Martis*, made with Vinegar, a Penny Weight, mix them well, and put them into a Furnace, and let them ſtand Twelve Hours; then caſt them into Water, to ſeparate the Lead, and put them again into the Furnace, where let them ſtand other Twelve Hours, then the Metal will be clear; ſo mix them, and take an Eſſay; and if it appear Green, put in a little more *Crocus Martis*, which will take it away, and ſo it will become a fair yellow Gold Colour.

A Sapphire coloured Glaſs of Lead.

Take of Chryſtal Frit Fifteen Pound, calcined Lead Twelve Pound, ſearſe and well mix them together, ſo add to them a Penny Weight of Manganeſe, and Two ounces of Zaffer, both well prepared, and let them ſtand Twelve Hours in the Furnace; caſt them into Water, and ſeparate the Lead. Do the like a ſecond time,

time, and when the Colour takes, it will be that of Oriental Sapphire, very fair, with the mixture of a double Violet Colour.

To Colour Natural Chryſtal of a Viper-Colour, without melting.

Take Chryſtal that is of a good Water, fine and clear, in ſeveral Pieces of different Bigneſs, yellow Orpiment, and crude *Mercury* in Pouder, of each Two Ounces, Sal-Armoniack one Ounce; let the Three laſt, in fine Pouder, be well mixed together, and put them in a Crucible that will well bear the Fire, and upon them the Chryſtal in Pieces, ſo cover the Crucible with another, Mouth to Mouth, and well luted, and when they are dry, ſet them on Coals, which kindle by little and little, and being fired, ſuffer them to flame of themſelves, and then they will ſmoak much, therefore you muſt do it in a large Chimney, to avoid the Fumes, which are hurtful, and when the Fumes are evaporated, let the Chryſtal ſtand till cold, by the going out of the Fire of its own accord, ſo unluite the Crucibles, and take out the Chryſtal, and thoſe of the top will be tinged with a curious Yellow, a Red Ruby and Balaſs Colour, with fair Spots, and thoſe at the bottom into the Wavy Colour of a Viper, and will endure a good poliſhing, and contain a curious Luſtre.

A curious Lapis Lazuli *Colour.*

To do this, melt the moſt tender white Chryſtal, and *Lattimo* in a Pot, and when well melted

melted, put in blue Smalt, by little and little, and when the Colour comes well, let it ſtand in the Fire Two Hours; then make an Eſſay of it, and when it is Proof, let it ſtand Twelve Hours; mix and work it, and if the Metal riſe, put in a Piece of Leaf Gold, and it will allay it, and ſo you will have the natural Colour of *Lapis Lazuli*.

To Colour Natural Chryſtal like Rubies, Balaſs, Topaz, Gizaſole, Opal, &c.

To do this, take Orpiment of a yellow Orange Tawny, well pouder'd Chryſtalline, white Arſnick, crude Antimony, and Sal-Armoniack, of each Two Ounces, pouder and mix them very well, and put them into a large Crucible, and upon them Pieces of Chryſtal, of a fair Water, without any Spots. Let the Chryſtal be ſomewhat large, and fill the Crucible, and lute on it another, Mouth to Mouth, making a Hole at the bottom of the uppermoſt, as big as a Straw, that the Air may get in to evaporate the Fumes. When the Lute is dry, ſet them in the Coals, ſo that all the lowermoſt, and the one half of the uppermoſt may be buried in the Coals; ſo kindle the Fire by Degrees, and do as in preparing the other Chryſtal, to avoid the Fumes, which will be long; therefore keep a conſtant Fire, very ſtrong, and keep out all cold Air, leaſt the Chryſtal being brittle, break, and ſo when cooled, as the other, the Colours will appear.

To make Glass of Lead, as red as Blood.

To do this, put into a Pot Six Pound of Glass of Lead, Ten Pound of Chrystal Frit, and when purified, cast them into Water; then return them into the Pot, and when they are well refined, put in Five or Six Ounces of Copper calcined, to a red Pouder, and let them boil up and refine; after that put in a little red Tartar in Pouder, and let the Metal boil up again, and well incorporate, and take an Essay, and if the Colour be not come up to a height, put it again to Aneal, till it comes to its Colour.

To recover the faded Colour of natural Turquois.

Put it into a Glass, and pour on it the Oil of Sweet-Almonds, keep it warm, on temperate Ashes, and in Two Days the natural Colour will return very beautiful.

To make Vitriolum Veneris, *used in Colouring Glass, and in some Places mentioned.*

Set covered Crucibles in an open Wind-Furnace, with burning Coals; let them stand Two Hours, then suffer the Furnace to cool of it self, so take out the Crucibles, and you will find the Copper you have put in, calcined to a blackish, or dark Colour, or obscure Purple, which poudered and well searsed, put into an Earthen Vessel, that will hold the Fire; set that

that in an open Wind Furnace on crofs Iron Bars fill the Pans with lighted Coals, put in the calcined Copper, adding to every Pound Weight Six Ounces of Brimstone, poudered, and when the Brimstone begins to flame, keep it continually stirring, till the Brimstone be consumed, and the Smoak ceafe; then take it out hot; do this by renewing three times, and you will have a curious Pouder, fit for your Purpofe, for being infufed in Water in a Retort for many Hours, and well luted: The curious and fineft fetling, feparated, is excellent to mix when dry with Zaffer, and put to Chryftal Frit, makes a marvelious Sea-Green, and in many other Cafes, an Azure or curious Sky-Colour.

CHAP. III.

To make curious Enamels of divers Colours, after the beft manner, for Gold and Silver Works, and other Metals. To fix Sulphur, extract Animum Saturni, &c.

The Ground-Work of Enamels.

TAke Thirty Pound of fine Lead, Thirty three Pound of fine Tin, fearfe them when they are well calcined in a Kiln, boil this Calx a little in clean Water, in Earthen Veffels, and when you take it off, decant the Water, by Inclination, and in it will be the finer part of the

the Calx; pour fresh Water on the Remainder, boil and decoct it as before, and so do as long as the Water can it off any Calx, and then re-calcine that which remains Gross, and draw off the more subtil part of it, as before; after that evaporate the Water that carried off the finer Calx over a gentle Fire, that the Calx may not fly out with it, and be wasted, but remain in the bottom. Then take Chrystal Frit, made with Tarso, finely ground, and of this Calx, each of them Fifty Pound, white Salt of Tartar Eight Ounces, pouder, Searse, and well mix them; then put the Composition into a new Earthen Pot, giving it a Fire for Ten Hours, then pouder it, and keep it close covered in a dry Place, and of these Materials all the Ground of Enamels are made, of what Colour soever.

Materials or Utensils for this Work.

In this curious Work, which is in high Esteem, and very profitable, it will not be amiss to set down the Materials or Utensils to be used, and therefore first observe, that the Pot wherein you make the Enamels, must be well glazed with white Glass, and that it bear the Fire well.

2. Incorporate and well mix the Stuff, and Colour of the Enamels.

3 When it comes to be refined, so that the Colour proves good, and all well incorporated, take it off from the Fire with a pair of Tongues for the Goldsmith's Use.

The

The Way of making Enamel.

To make Enamel, pouder, fearſe, and grind well the Colours; having mixed them one with another, as the Occaſion requires, then with the Stuff of the Enamel, ſo ſet them in Pots in the Furnace, and being melted and well incorporated, caſt them into Water, and being dry, ſet them again in the Furnace to melt, which will be ſoon effected, ſo make an Eſſay or Proof, and if the Colour be too high, take out ſome of it, and add more of the Stuff of the Enamel, and if too light, add more of the Colour, till you bring it to a due Proportion.

To make white Enamel.

Take Six Pound of the Stuff for Enamel, 48 Grains of Manganeſe, caſt it thrice into Water, and being refined, melt it, and it will produce a curious white Enamel.

Turquois coloured Enamel.

Take Six Pound of the Stuff of Enamel, melt, refine, and caſt it into Water, then again ſet it in the Furnace, and when it is melted, and well refined, put in Three Ounces of calcined Braſs, at thrice, Ninety ſix Grains of prepared Zaffer, and Forty Eight of Manganeſe, likewiſe prepared; mix theſe well every time, and let them incorporate; make a Proof with your Eye, as to the Colour, and when you find it Right, take it out, and keep it for uſe.

A Green Enamel.

Take Four Pound of the Stuff for Enamels, place it in the Furnace, and in Ten or Twelve Hours it will be melted and refined, so cast it into Water, and place it again in the Furnace, in its own Pot, and being refined, put in Two Ounces of Brass, thrice calcined, mixed with Two Ounces of Scales of Iron, well ground, put these in at three times, mixing and incorporating them well every time, and so work it up to a pure Colour, and take it from the Fire, *&c.*

To make Violet-coloured Enamel.

Take Six Pound of the finest Enamel Stuff, Three Ounces of Maganese, well prepared, Forty Eight Grains of thrice calcined Brass, mix the Powders very well together, and then do the like with the Enamel Stuff; put them into the Furnace, cast them into Water, and being dry, put them again into the Furnace, and when the Stuff is refined and well coloured, make it up for use.

To make a Sky Colour Enamel.

Take Four Pound of Enamel Stuff, Brass of Sky-Colour, and Sea-Green, each Two Ounces, prepared Zaffer Forty Eight Grains, and mix them well; then in all things else use them as the former.

To

To make Purpliſh Enamel.

Take Six Pound of the Stuff for Enamels, Two Ounces of Manganeſe prepared, of Braſs, thrice calcined, Six Ounces, mix them very well together, ſet them in the Furnace, and in all things elſe uſe or order them as in other Enamels.

To make Gold Colour, or Yellow Enamel.

To make this, take Six Pound of Enamel Stuff Three Ounces of Tartar, Seventy Two Grains of Manganeſe prepared, grind and mix the Powders well together, and after that, with the Stuff of the Enamel, and melt and order them as other Enamels, and it will be of a fair Golden Yellow, proper to Enamel on Gold; but it will not ſhew ſo well there, unleſs it be worked on with other Enamels, that may make a pleaſing Variety of Colours.

A Black Enamel, to make it.

Take Four Pound of the Enamel Stuff, Manganeſe and Zaffer prepared, each Two Ounces, mix them well together, and then incorporate them well with the Stuff; put the Pot, with theſe Materials, into the Furnace; let the Pot be large, and when they are melted and refined, caſt them into the Water; then put them into the Furnace again, and they will quickly refine, and become of a curious Velvet-Black.

Another

Another curious Black Enamel.

Take Four Pound of the Stuff of Tartar, Four Ounces, well prepared Manganeſe Two Ounces, mix and grind them well, and then mix them well with the Enamel Stuff, and in melting and refining, uſe them as other Enamels.

A Red Enamel.

Take of Enamel Stuff Four Pound, put to it Two Ounces of Manganeſe prepared; mix them well, and ſet them in the Furnace, in a large Pot, and being melted, and refined, caſt it in Water, melt, refine, *&c.* again.

To make an Azure Enamel.

Take Four Pound of Enamel Stuff, prepared Zaffer Two Ounces, mix with it at firſt, of thrice calcined Braſs, Forty eight Grains, and when the Pouders are well mixed, mix them with the Stuff, and ſo order them in melting and purifying, as other Enamels, the melting, *&c.* being all one in every caſe.

Another curious Green Enamel.

Take Six Pound of Stuff, mix with it Three Ounces of Ferretto of *Spain*, well ground, and Forty eight Grains of *Crocus Martis*, and being well mixed, melt and purifie them as the former Enamels.

Another

Another curious Green Enamel.

Take Four Pound of Enamel Stuff, refine it well in a Pot, in the Furnace, then cast it into Water, and put it into the Pot and Furnace again, so refine it; then put in at Three times thrice calcined Brass, Two Ounces of *Crocus Martis* made with Vinegar, Forty eight Grains; then melt and refine them again, with incorporating the Pouders.

Another Black Enamel.

Take Six Pound of Enamel Stuff, prepared Zaffer, *Crocus Martis*, made with Vinegar, and of Ferretto of *Spain*, each Two Ounces. grind and mix the Pouders well together, and then incorporate them with the Stuff, and order them in the Fire and Water, according to the usual Rule.

A fair Red to Enamel Gold.

Take Chrystal Frit, made of Salt of Pulverine Ten Pound, white Tarso, finely ground, Eight Pound, make a substantial Stuff with this Frit and Water, rowl it into thin Wafers, put them into an Earthen Pan, into a little Furnace, made in the Fashion of a Calcar, that they may be calcined about Ten Hours with a good Fire, and for Defect thereof, put them in the Furnace, near the Occhio, Three or Four Days, till they be well calcined; take prepared calcined Lead, and Tin, and of Tartar Wine calcined, each Two Pound, mix these well together;

ther; put them in a well glazed Pot, glazed with white Glass, and when melted and pretty well refined, cast the Metal into Water; so melt and refine it again, then put in the red Pouder of calcined Copper 12 Ounces, and when the Colour is well purified, add *Crocus Martis*, made with *Aquafortis*. put it in by degrees. and give it leave to settle Six Hours. make a Proof to see if the Colour is good, if not heighten it with more *Crocus Martis*.

To fix Sulphur for this Work.

Boil the Flour of Brimstone an Hour in common Oil, and being taken off the Fire, cast upon it strong Vinegar, and the Sulphur of a sudden will sink to the bottom, and the Oil will be on the top of the Vinegar, then empty the Oil and Vinegar; then put fresh Oil on the Sulphur, repeat this thrice, and then you will have a fixed Sulphur proper for the Work.

To extract Anima Saturni *useful in Enamel.*

Put well ground Litharge into an earthen glazed pan, pour distilled Vinegar upon it, let it be Four Fingers above it, and let it stand till the Vinegar is of a milky Colour; then decant it off, and put fresh Vinegar upon the Litharge; do this till the Vinegar becomes no more coloured, then let the coloured Vinegar stand in glazed Pans, that the milky Substance of the Litharge may sink to the bottom; then decant off the clear Vinegar, and the remaining milky

Substance is the *Anima Saturni*: And if in this case, the white Stuff precipitate not well, cast upon it cold Water, which usually makes it fall to the bottom, and when it do's not precipitate, evaporate the Water and Vinegar.

CHAP. IV.

The Art of making Calcedony like Jasper, Agates, and other lucid Stones, with their Clouds, Shadows, Spots, Waveings, and many other curious Embellishments; and to prepare the Materials useful in the Work.

TO make curious Waveings, and other Mixtures of Colours that surpass the Workings of Nature in Calcedony, *&c.* I shall lay down such perfect Rules as have not hitherto been distinctly known but to a very few: And,

1. Put Two Pound of *Aqua-fortis* into a glass Body, not very large but with a long Neck, and Four Ounces of fine Silver, in fine small Pieces very thin, set them in warm Water or near the Fire; and as soon as the *Aqua-fortis* heats, it will work and dissolve the Silver; then take a Pound of *Aquafortis*, and in it dissolve Six Ounces of Quick-silver, mix these Two Waters together in a greater Body, and pour them on Six Ounces of *Sal-Armoniack*: Let it dissolve at a gentle heat, then put into the Glass, One

One Ounce of Zaffer, and half an Ounce of Manganeſe, all well prepar'd; alſo half an Ounce of *Ferretto* of *Spain*, and a quarter of an Ounce of *Crocus Martis*, calcined with Brimſtone; alſo thrice calcined Copper, blue Smalt, and red Lead, each half an Ounce, let them be finely poudered and put one after another into the Body, which ſtir ſo gently, that the *Fortis* may be incorporated with them, and for Ten Days keep the Body cloſe ſtoped, every Day ſhaking it divers times; and ſo being well opened, put it into a Furnace on Sand, and make ſuch a temperate Heat, that in Twenty four Hours all the *Aquafortis* may be evaporated; then in the bottom there will remain a Lion Colour, which being reduced to fine Pouder, keep it in a ſtrong glaſs Veſſel.

When you prepare to make a Calcedony, put into a Pot broken Chryſtal made into a clear Metal, and white Glaſs and Chryſtalline which has been uſed, for with ſuch Frit as has not been wrought it cannot be made; for the Colours ſtick not to it, but are conſumed by the Frit. To every Pot of Twenty Pound of Glaſs, you muſt put Two, or Two Ounces and a half of this Pouder, and ſometimes Three Ounces, put it in at thrice, that it may the better mix and imbody; and in this doing, certain blue Fumes ariſe, and when it mixes let your Glaſs ſtand about an Hour, then put in another Mixture and let it ſtand Twenty four Hours, ſo it will be well mixed.

This done, Eſſay it, and it will have a yellowiſh Azure Colour; this Proof many times returned into the Furnace, and taken when it

begins to cool, will shew divers wavey and very fair Colours: After this take Eight Ounces of Tartar, Soot of the Chimney well vertified, *Crocus Martis* calcined with Brimstone half an Ounce, put it on by degrees, mixed in fine Pouder; at Six times, taking a little Intervail between each putting in, mixing it with the Glass, so that it may be well incorporated, and when all the Pouder is in, let the Metal boil and purifie Twenty four Hours: Make of it a little Glass Body, which put in the Furnace many times, then try if it be enough, and there be blue Toys on the outside, Sea-green, Red, Yellow, and all Colours with Toys; and that it is illustrated with Waves, such as Calcedony, Jaspers, or oriental Agates have; and that to the Sight, the Body kept within, appears red as Fire.

When this Body is made and perfected, you may work it into Vessels, aways variegated and new made, for they do not rise well; but he that works it must observe to pinch off well the Glass, and aneal it sufficiently, that it may make Waves and Toys of the faireſt Colour; and afterwards you may work it at the Wheel, for it takes Polishing and a very fine Lustre as Jewels.

If it happens, that the Colour fades, and the Glass becomes transparent, then leave off working, and put to it new Tartar calcined, Soot and *Crocus Martis*; for thus, as before, it takes a Body and Opacousness, and the Colour by that means will appear; so let it purifie many Hours, that as it is usual, the Pouder newly put in, may be incorporated, then work it.

Ano-

Another curious way to make Calcedony, &c.

Diſſolve Three Ounces of fine Silver in a Pound of *Aqua-fortis*, cut ſmall and thin, in a glaſs Body, and ſo ſet it aſide.

In the next place, put a Pound of *Aqua fortis* in another Glaſs, and diſſolve in it Five Ounces of well purified Mercury, and cloſe the Body well.

Put another Pound of *Aqua-fortis* into an other little Glaſs, wherein is diſſolv'd Two Ounces of *Sal Armoniack*, then put in *Crocus Martis* made with *Aqua fortis*, *Ferretto* of *Spain*, Copper calcined into red Pouder, and Braſs calcined with Sulphur, of each half an Ounce; grind and well pouder theſe Materials by themſelves, and put them in one by one into the Body by degrees with leiſure, becauſe they all of them ariſe much.

In another little glaſs Body, let there be a Pound of *Aqua fortis* diſſolve in it, an Ounce of *Sal Armoniack Vitriol* purified, crude Antimony poudered, Azure, or blue Smalts of each half an Ounce, red Lead an Ounce, grind them well and ſet them by in a Veſſel.

In another glaſs Body, diſſolve in a Pound of *Aqua-fortis*, Two Ounces of *Sal-Armoniack*, add an Ounce of prepared Zaffer, and a quarter of an Ounce of prepared Manganeſe; of Cinnaber an Ounce, and half an Ounce of thrice calcined Copper, put them warily in, well poudered, every one by its ſelf, that you may avoid the Fumes that will ariſe.

In another Glass put Two Ounces of *Sal-Armoniack* to a Pound of *Aqua-fortis*, then add Verdigreese, Ceruse, red Lake, and Scales of Iron, each half an Ounce, let all these Bodies stand Twelve Days, shaking every one of them Six times every Day, so the *Fortis* will penetrate and subtilize the Metal and Ingredients, the better to communicate the Tincture of the Colours to the Glass.

When this Work is thus far brought to pass, take a great glass Body well luted at the bottom, and empty into it all the Materials of the other little Bodies by degrees, that they may not make the glass crack or run out in this great Body; so mix the Waters, that the Materials may be well incorporated, so set it in the Ashes at a very gentle Heat, for Two much Heat wastes the Pouders; so that the *Fortis* being evaporated, there will remain a rediish Pouder at the bottom, which keep close in a glass Vessel for Use.

When you design to use it, put it into the Metal of broken pieces of Glass that have been used, doing now as in the former, giving the Metal the same quantity of Time, and use the like distance; then add the Body of burnt Tartar, Soot of the Chimney vitrified, and *Crocus Martis* made with Vinegar, suffer them then to settle Twenty four Hours, and work it in all respects as the former, and it will produce Wonders.

To

To make divers Things uſeful in this Work; and firſt to purifie Vitriol *to make ſtrong* Aqua-fortis.

To do this, take the beſt Vitriol, and diſſolve it in common warm Water, let it ſtand Three Days till it is impregnated with Salt; ſo filter and evaporate it in glaſs Bodies till Two Thirds of the Water is conſumed; put the remainder into earthen glazed Veſſels, ſet them Twelve Hours in a cold Place, and the *Vitriol* will ſhoot into pointed Pieces, appearing like natural Chryſtal of a fair Emerald Colour. Let this *Vitriol* be diſſolved again, do as before, and thrice repeat it at each diſſolving; there will remain at the bottom a yellowiſh Subſtance, which is unprofitable Sulphur, and muſt be removed.

At the third time you will find the *Vitriol* ſo purified, that it will make a ſtrong *Aqua-fortis*, particularly if the Nitre be well refined.

A good way to burn Tartar.

Take Tartar of red Wine, in great Pieces full of Spots, put it into new earthen Pots, let it burn till it ſmoaks no more, in a pretty good Fire, and being calcined, and in Lumps of purpliſh Colour, it is well calcined, and prepared for uſe.

Aqua-Regis, *how to make it for this Work.*

To every Pound of *Aqua-fortis*, made as before, put into a glaſs Body, Two Ounces of *Sal-*

Armoniack well poudered, ſet it in an earthen Veſſel of warm Water, often ſtiring the *Aqua-fortis* which having diſſolved the *Armoniack*, will be tinged with a yellow Colour, then put in more *Sal-Armoniack* whilſt the *Fortis* will diſſolve no more; then let it have a little reſting, and when it is clear decant it off very leiſurely, and the unprofitable Droſs of the *Armoniack* will remain in the bottom and this *Aqua-regis* will be of force ſufficient to diſſolve Gold and other Metals, but it will not do the like by Silver.

CHAP. IV.

To prepare Materials, and make artificial precious Stones in Imitation of the true ones; as Topaz, Emeralds, Chryſolytes, Garnet, and other oriental Stones of a very curious Luſtre, differing from the true ones only in Hardneſs, as being of equal Beauty; and to colour Balls or Globes of Glaſs within-ſide, &c.

The Ground of this Work in preparing natural Chryſtal.

TAke the cleareſt Chryſtal you can get, free from Spots, in Pieces; put the Pieces in Crucibles, covered at the top, and ſet them in hot burning

burning Coals, and when thoroughly heated, put them into a large Pan of cold Water, and being cold, dry and recalcine it, and throw it into Water; and ſo do ſucceſſively twelve times, keeping all Aſhes and Filth out of the Crucible, and being ſufficiently calcined, grind it to an impalpable Pouder, as fine as Meal, on a Porphyry Stone, with a Muller of the ſame; grind about a Spoonful at a time, and often tearſe it, till no roughneſs remains to be felt in the Pouder, leaſt it make the Work dirty or imperfect; and this is the Ground Work to mix with all Colours, for making artificial Jewels of Paſte, as will appear hereafter.

Materials uſeful in this Work, and other Matters.

Obſerve to lute well the Pots wherein the Chryſtal is calcined, and the Paſtes are baked, with good dry Lute, before you either calcine or bake; and be ſure to take Pots that will well endure the Fire, and in all Reſpects keep a juſt Proportion in the Doſe of the Ingredients.

Always obſerve, before you bake the Ingredients, to mix them very well, and if it fail to be thoroughly baked at firſt, you muſt do it again in a Potter's Furnace; and break not the Pot till it is ſufficiently done, for if you do, it will be full of Bliſters, and foul.

Obſerve always to leave a Vacancy of a Finger's thickneſs on the top of the Pot, particularly where it is held to ſwell much, or that you muſt put it in with Care and Leiſure, to prevent the Materials running into the Fire, or if

it ſtick to the Cover, the Colour will be foul. Having given you theſe Rules or Directions, I now proceed to the making ſeveral ſorts of artificial Jewels.

To imitate Topaz.

Take two Ounces of prepared Chryſtal, ſeven Ounces of the ordinary *Minium*, mix and bake them according to Art, for a marvellous oriental Topaz Colour, with which you may Work what Works you pleaſe.

A fair Emerald imitated.

Take two Ounces of prepared Chryſtal, ſix Ounces of ordinary *Minium*, mix theſe extream well together, adding eighty Grains of fine Verdigreace, well ground, mix and bake them to work a fair Emerald.

To make a deep Emerald Colour.

To do this, take two Ounces of prepared Chryſtal, ſix Ounces and a half of common red Lead, mix them, and add of Verdigreace about three Penny Weight, and thirteen Grains of *Crocus Martis*, made with Vinegar ten Grains, mix them exceeding well together, and work it fit for baking; and to ſee when this, or other coloured Paſtes are baked enough, purified and tranſparent, take off only the Cover, made of Lute, and if it be ſo to the bottom it is enough, if not, you muſt preſently relute, and bake it again, not breaking the Pot, for the Reaſons before mention'd, and let the Fire be continued with

with dry Wood twenty four Hours, and so you will have a marvellous Colour for small Works, and to be set in Gold.

But observe this Emerald paste must have a more than ordinary baking to consume the Imperfection the Lead brings upon it; and though it is somewhat brittle, it is excellent shining and transparent.

To imitate Oriental Chrysolytes.

Take two Ounces of Chrystal prepared, and eight of ordinary *Minium*, and when they are well mixed, put to them twelve Grains of *Crocus Martis*, made with Vinegar, bake it more than ordinary, and it will come out very fair.

A Sky and Violet coloured Paste.

Take prepared Chrystal two Ounces, and four Ounces of ordinary *Minium*, add four Grains of fine blue Smalt, well mix them together, and when well baked, there will be a curious Violet, and fair Sky-Colour.

Sapphires to imitate in Paste.

Take six Ounces of ordinary *Minium*, and two of Chrystal prepared, and when they are well mixed, add five Grains of prepared Zaffer, and the like of Manganese; mix and bake the Paste well, and it will produce a curious Sapphire-Colour.

To imitate Garnet in Paſte.

To do this, take ſix Ounces of ordinary *Minium*, two of prepared Chryſtal; when theſe are well mixed, put ſixteen Grains of prepared Manganeſe, and three Grains of prepared Zaffer, mix the Paſte well, and when it is baked, it imitates a fair Garnet.

A way to make Paſte to imitate all Sorts of Precious Stones.

To do this, take Ceruſe, or white Lead, grind it as fine as fine Wheat-Flour, ſo put it in a great Glaſs Body, and put to it as much good Vinegar as will cover it, four Fingers upward, putting it in by little and little, till the Fury and Noiſe of the boiling and ſwelling of it is over, ſo ſet it on a hot Furnace in Sand, that the 8th. part of the Vinegar may evaporate, ſo take it from the Fire, and letting the Body cool, decant it leiſurely, the Vinegar being ſufficiently coloured and impregnated with Salt, put it aſide in a Glaſs Veſſel, and pour freſh Vinegar on the remaining Lead; let this Vinegar be diſtilled, and decant it as before. Do this till all the Salt is contracted from the Lead, and that will appear when the Vinegar will take no further Colour, nor has any more Taſte of Sweetneſs, which generally happens after the ſixth time of decanting.

The Work being thus far proceeded in, filter the coloured Vinegars, when mixed together, and evaporate and dry them in a Glaſs Body,

and

and at the bottom you will find the Salt of the Ceruſe of a white Colour.

Set this in a Glaſs Body, in Sand, being well luted from the Neck downwards, but let the Mouth be open, and the Heat of the Furnace contracted for twenty four Hours; then take out the Salt, and if it be yellow, and not come to a Red, it muſt ſtand twenty four Hours longer in the Fire, and when it is of the Colour of Cinabar, it is enough prepared; then make ſuch a Fire as may not melt it, for if it melt, your Labour is loſt.

Pour diſtilled Vinegar on this calcined Lead, repeating, as before, till you have extracted all the Salt from it, and then ſeparate the Terreſtreity in part, or in the whole, and keep this coloured Vinegar, in glazed Earthen Pans, ſix Days, that ſo all the Settling and Imperfection may ſink to the bottom; then put the ſeveral Vinegars into a Glaſs Body, and cover it, and after ſome time ſtanding, a white Salt of Lead will be at the bottom, ſo filter it, that the groſſer and unprofitable part may remain behind, and cover the Vinegar in a Glaſs Body, and at the bottom you will have a white Salt, as ſweet as Sugar, which you muſt dry well, and then it being diſſolved in common fair Water, let it ſtand in earthen glazed Pans, ſix Days; then take away the Sediment, and filter and evaporate as before, and there will remain a Salt, as white as Snow. Do this thrice in the ſame manner, and being thus prepared, it is known by the Name of *Saccharum Saturni*, which put into a Glaſs Body, in Sand, and ſet it in a Furnace at a temperate Heat for ſeveral Days, and when calcined, it

it will appear of a Colour redder by far than Cinabar, and as subtil and impalpable as the finest searsed Flour, and so it is called the true Sulphur of *Saturn*, purified from all Terrestreity.

When you would make Paste for Sapphires, Emeralds, Topaz, Garnet, Chrysolytes, Sky, or any different Colour, take the same Materials, Quantities and Colours, as in the foregoing Receipts, except that instead of ordinary red Lead, where that occurs in any of them, you shall take Sulphur *Saturni*, working in every thing as before directed, and so you shall imitate Jewels of marvellous Beauty, which far surpass any yet mentioned, where ordinary red Lead is an Ingredient.

Directions how to colour Balls of Glass, or other white Glass within of marvellous fair Colours.

Take any Orbicular Glass that has a cavity within, and season it in warm Water, after that infuse Izing-Glass two Days in fair Water; then put the Infusion into a white Pan, boil it till all be well tempered, then take it off, and when it is warm, put it into a Ball of Glass, *&c.* Turn the Glass about, that it may wet and fasten well every where within the Glass, so let the Moisture drain; then with a hollow Tube or Pipe, blow finely poudered red Lead into it in all Parts, that it may run on the Moisture, and wave up and down; after, blue Smalt, and then Pouder of Verdigreace, all very fine, and then Lake well ground, so that they,

they may wave and intermix to make a curious Colour, and when they stick well, take Gesso, well poudered, put a good Quantity of it into the Ball, and suddenly turn it about; then put out the Superfluity, and the inside being dry, many curious Colours will appear.

CHAP. V.

To extract Lake, and other curious Colours, from Flowers, Herbs, Seeds, and other things, for Painting, Limning, &c.

To extract Lake from red Roses, wild Poppies, red Violets, Flower-de-Luce, Orange, Borage, Carnation, or other Flowers.

TO do this, take what quantity you will of the Leaves of the Flowers, which being bruised on a Leafe of white Paper, tinges it with its Colour, you may assure your self of Success, but those Herbs or Flowers that do not so, are not serviceable in this way.

This Experiment being made, put ordinary *Aqua vitæ* into a Glass Body, the Head as large as may be, and in the top put the Leaves of such Herbs and Flowers from which you would draw a Tincture; then lute the Joints of the Head, and fit a Receiver to it, so give it a temperate Heat, that the more subtil part of the *Aqua vitæ*, ascending to the Head, and falling on the Flowers, may suck out the Tincture, suffering it to do so, so long as it comes coloured; after

after that, distil the coloured *Aqua vitæ* in a Glass Vessel, which will be overwhite at its coming forth, and is fit for Use in this nature at other times, and then the Tincture remaining at the bottom, must not be over dried, but care taken that it may be moderately done, and so you may have the Tincture of curious Lake from all Flowers and Herbs fit for Limning, and other beautiful Works.

To Yellow Lake, extracted from Broom-Buds, or other yellow Flowers that have a good Tincture another way.

Make a Lee of Lime, and Barrilla tolerably strong, and in it, over a gentle Fire, boil fresh Broom-Flowers, having their full Sap or Substance in them. Order it so, that the Lee may draw to it all the Tincture of the Flowers, which will be known by their turning White, the Lee being then as Yellow as Trebean Wine; after that, take out the Flowers, and put the Lee into glazed Earthen Dishes, set it at a moderate Heat; after that, let it boil by Degrees, and put to it so much Roach Allom as may well dissolve with the Fire. When it is well ordered, put the Lee into Vessels of fair Water, and the Yellowness will settle at the bottom; so when the Settlement is made, decant off the Water, and pour on that which is fresh, and when the Tincture is sunk, order it as the former. Do this till the Salt of the Lee is quite taken out, as also the Taste of the Allom, and then the Tincture of the Colour will be the fairer, and

do

do ſo till the Water runs out ſweet, without any Saltneſs, with the ſame Taſte as when it was put in, and then at the bottom, you will find a curious and beautiful Lake for Uſe, and whilſt it is wet, ſpread it upon a Piece of white Cloth, and dry it in the Shade, upon new baked Bricks, and keep it dry, and as much from the Air as may be, and theſe Two Ways at your Diſcretion, you may extract Colours from any Flowers, or Herbs that have natural Tinctures.

To make a curious Blue or Sky.

Take three Parts of the Flour of Brimſtone, two of Quick ſilver, and eight Parts of Sal-Armoniack, grind theſe well on a Porphyry-Stone, and with the Quick-ſilver put them into a long necked Glaſs, well luted at the bottom, ſet it in Sand, and make a gentle Fire till the Moiſture riſes, then let the Glaſs be ſtopped at the Mouth, and encr a'e the Fire, as in Sublimation, till the end, and a very luſtrious fair Blue will be the reſult of your Labour.

To make that Embelliſhment, called, The Mixture of the Spheres.

Take purified Tin, that is well purg'd, three Pound, Copper, well purified, one Pound, melt firſt the Copper, then the Tin, and being well melted, caſt upon them ſix Ounces of Tartar of Red Wine, only burnt, and of Salt-Petre an Ounce and a half, add two Ounces of Arſnick, and a quarter of an Ounce of Alom, finely poudered, ſuffer them to evaporate, and

then

then cast them into the form of a Sphere, which Metal he may curiously burnished and polished, and will shew rare in the Mixture for Spheres.

A Lake to be drawn from Cochineel.

Infuse in cold Water a Pound of the Shearings of the finest Woolen Cloth, a Day, and so press it well to take away the Oilinesse of the Wool; then in this manner Alom the Shearings. *viz*

Take of Roch-Alom four Ounces, and two of crude Tartar, finely poudered, one of Cochineel; put these into a little Pipkin, with about Four Quarts of Water, and when this begins to boil, put in the Flocks; let them boil over a gentle Fire half an Hour, so take them off, and suffer them to cool six Hours, then take them out, and wash them well in fair Water, and when the Water is well soaked in them, by standing two Hours, press it out, and let the Flocks dry. Evaporate the Water, and at the bottom you will find a Sediment of a curious Tincture, as also in the Flocks.

Lake of Brasil and Madder.

In this case you must work each of them by themselves, but use not so much Alom by an Ounce, as you did before, because the Tincture of the Cochineel is deeper than that of Brasil and Madder; wherefore, give them their due Proportion, which you will soon find by Practice; and to one Pound of Flocks use more

Brasil,

Brasil, or Madder for Weight. They have not so deep a Tincture as Cochineel has. Work in all Points as in the former, and you will have a very fair Lake.

Lake of Cochineel, another and more easie Way.

Put a Pound of Roch-Alom, well poudered, into a Pottle of *Aqua vitæ*, of the first running, and being well dissolved, put in an Ounce of Cochineel in Pouder, very well sifted; do as in the former, and put the Materials in a Glass Body, having a long Neck; shake it well and often, that the *Aqua vitæ* may be well tinctured; so permit it to stand the space of Four Days, then pour it out into a clean glazed Earthen Pan, and in common Water dissolve four Ounces of Roch-Alom; put it into the coloured *Aqua vitæ*; put it into Hypocrates's Sleeve, or a Woolen Bag, and for the rest, order it as the other cochineel Lake, and it will very much profit you.

CHAP. VI.

The curious Art of Painting Glass in various Figures and Colours, in Oil, and anealing and burning of the Colours in a Furnace to be more lasting and durable against all Weathers, a rare Secret.

SEeing all People have not the Advantage or Conveniency to make Glass of divers Colours, in a solid Body, it will be proper in this Work

Work to give an Inſight into the ſuperficial Colouring or Painting it with Colours that ſhew fair on the outſide, though they penetrate not; and in the firſt Place, I ſhall ſpeak of the Colours proper for to be uſed in this Art, and then proceed to Directions for uſing them.

For a fair Yellow.

Take a fine thin Piece of good Silver, dip it into melted Brimſtone, and when it has lain there a while, take it out with Plyers, light it in the Fire, and hold it till it has done burning; then beat it to fine Pouder, in a Braſs Mortar, and grind it with Gum Arabick, and a little yellow Oaker.

A Gold coloured Yellow.

Take a Dram of fine Silver, Antimony in Pouder, two Drams, put them in a crucible, into a very hot Fire, about half an Hour, then caſt it into a Braſs Mortar, beat it into Pouder, and put to it ſix Drams of yellow Oaker, old Earth of ruſty Iron, ſeven Drams, grind them exceeding fine for your uſe.

To make a curious Blue Colour.

For this purpoſe, take the cleareſt Leads you can get of that Colour, beat them well in a Braſs Mortar, take Enamel of the ſame Colour, very tranſparent, grind each of theſe by it ſelf, then take two Parts of Lead, and Enamel, and grind them together as you did the Silver.

A Fine Carnation Colour.

Take four Drams of Jet, Tin, or Litharge of Silver two Drams. Gum and Scales of Iron, each one Dram, and of red Chalk one Ounce, grind theſe fine, and mix them well together.

A Velvet Black.

Take the Scales of Iron, and Jet, each alike Quantity, mix them well together for uſe.

Another curious Black.

To make this, take Scales of Copper, and Iron, each a Dram, heat them hot in a Crucible, then take half a Dram of Jet, grind them ſmall, and temper them well with Gum Water.

A curious White.

Make this of Chryſtal, ground as fine as Meal, and though it be of natural white Glaſs Colour, it ſerves curiouſly to Diaper up it, and for other Uſes.

A Pleaſant Green.

Take dried Verdigreace, and grind it well with Turpentine, put it into a glazed Earthen Pot, and when you uſe it, warm it ſo that it may run and ſpread well, and ſo be pliable to the Work.

A Fair red Colour.

Pouder Sanguis Draconis, and put to it re-ctify'd Spirit of Wine, and when it has been a while cloſe covered, it will grow very tender; wring it out into an Earthen glazed Pot, that the Droſs may remain in the Cloth, and keep the fine Liquid part for uſe.

Another Carnation, very pleaſant.

Take Jet three Drams, red Oaker five Ounces, Tin Glaſs an Ounce, Gum two Drams, grind theſe well together, and you will have a fair Carnation.

The Manner and Ways of Painting on Glaſs.

The manner of this is two-fold, *viz.* in Oil Colours, and ſuch Colours as are afterward to be anealed and burnt on.

To lay Oil Colours.

To lay Oil Colours on Glaſs, you muſt firſt grind them, once with Gum-water, then Temper them with Spaniſh Turpentine, and ſo lay them on according to Art, in Figures, or otherwiſe, and let them dry by the Fire, and the Work is finiſhed.

To Aneal or Burn Colours on Glaſs.

To do this, and make the Colours abide well, you muſt have a four Square Brick Furnace, a a Foot and a half broad, and as much in Depth.

Lay

lay five or six Iron Bars on the top of it, and raise the Furnace about eight Inches above the Bars; then laying over the Bars a Plate of Iron, and sift on it slacked Lime, and upon the Bed of Lime lay a Row of Glasses, then cover them with Lime, and lay on another Row of Glasses, and so on, till the Furnace be filled.

Lay likewise with every Bed of Glass, a wast Piece, that you may wipe over with any Colour. These are termed Watches, and so when you think the Glass is sufficiently burned with a pair of Plyers; take out the lowermost and uppermost Piece or Watch; lay it on a Board, and when it is cold, use your Endeavour to scrape off the Colour; and if it hold well on those Rows from whence you took them, they are sufficiently done, and will hold their Colours against all Weathers, and by this Rule try all the rest, and prosper in your Work.

CHAP. VII.

The curious Art of Guilding divers sorts of Metals with Leaf and Water Gold, laying on Silver, &c.

To lay Gold upon Metals, Wood, &c.

GRind red Lead very fine, temper it with Linseed Oil strike it gently, and very thin over with a Pencil; let the Gold Leaves be layed on very Even, and when well dried, burnish

nish the Piece, and it will cast a curious Lustre, and in this manner Silver is laid on.

To lay Gold on Glass.

Take red Lead, and red Chalk, of each a like quantity, grind them well together, and temper them with Linseed-Oil, lay it on as the former, and when it is almost dry, lay Leaf Gold on it, exactly even, and being full dry, polish it.

To Gild on Stone or Wood.

To do this neatly, take Oil Ben, and Bole-Armorick, of each a sufficient quantity, beat and grind them well together, and finely smear the Wood or Stone with it, and being almost dry, lay on Leaf Gold, as before, and being well dried, polish it, and it will stick and shine gloriously.

To Gild that the Water shall not injure it.

Take calcined Oaker, Pumice Stone, of each a like quantity; add a little Tartar, and beat them with Linseed-Oil, then drop a few Drops of fine Varnish, strain these, well mixed, through a fine Linen Cloth, and so you may gild with it.

To Gild Iron or Steel.

To do this, take an Ounce of Tartar, three Ounces of Vermillion, Bole-Armorick and *Aqua Vitæ*, each two Ounces, grind these with Linseed-Oil, and put to them half an Ounce of *Lapis Calaminaris*, finely poudered, grind again with

with a few Drops of Varnish, and so take them off the Stone; strain it, that it may be the Thickness of Treacle, and so strike it thin and gently over the Metal, when warm; and when it is near dry, lay on your Silver or Gold, and burnish it.

A Water to Gild Knives, Steel Swords, Iron-Armour, &c.

Pouder Fire Stone, and put it into strong red Wine Vinegar; let it remain in it twenty 4 Hours, boil it in a Gallon-Pot, puting in more Vinegar as the other evaporates. Into this Water dip the Metal, and at first it will be Black, but being dried and well polished under that Blackness, there will be a curious Gold Colour.

Another curious Way for Water Gilding.

To do this, Take of Roch Alom three Pound, Roman Vitriol three Ounces, Opiment an Ounce, Verdegrease twenty four Grains, Sal Gem three Ounces, and when these begin to boil in the Water, put in of Tartar, and Bay-Salt, each half an Ounce, let them boil a considerable while, and then take off the Vessel, and the Iron being a little warm, strike it over with this Liquor, and when it is dried before a gentle Fire, burnish it, and you will have a curious Lustre.

To Gild Silver or Brass with Gold Water.

Take two Ounces of Quick-silver, put it into the Fire, in a Crucible, and when it first smoaks, put into it an Angel of fine Gold; so immediately take it off, and the Gold will be presently dissolved, and if it appear too thin, strain part of the Quick-silver through Fustian, then Rub the Quick-silver and Gold on Brass or Silver, and it will stick to it; set the Brass and Silver on quick Coals, till it begins to smoak; scratch it with a Brush, that the *Mercury* may separate and evaporate, and leave the Gold of a faint Yellow; then heighten it with Bole, Sal Armoniack and Verdegreace; grind and temper it with Water.

CHAP. VII.

A Treatise of Metals, in tinging, tincturing, ordering, and altering their Colours, hardening, softening, refining, melting, making Quick-silver Malleable, and many other curious Matters.

To make Brass.

TO do this, take three Pounds of Copper one of *Lapis Calaminaris*, in Pouder, melt them together for the Space of an Hour, and then put it out, and the Copper will be transmuted into a fair shining Brass.

To

To make Braſs white.

Dilute in *Aqua-fortis* about a Penny Weight of Silver, put it in a Veſſel to the Fire, till the Silver turns to Water; to which add as much Pouder of white Tartar as will ſuck up the Water; then make it into Balls, rub any poliſhed Braſs with this, and it will take the Colour of Silver.

To make Copper of a Gold Colour.

Melt the Copper, and put a little Zink to it in Filings, and being incorporated, it will be of a very ſhining Gold Colour.

To make Copper exceeding White.

To make this Metal of a Silver Colour, take Sublimate, Sal-Armoniack, of each a like Quantity, boil them in Vinegar, in which quench the Copper, when taken red hot out of the Furnace, and it will bear a Luſtre like Silver.

To make Gold or Silver ſoft.

Take Sal-Armoniack, *Mercury* Sublimate, of each a like quantity, melt the Gold or Silver, and put to it a little of this Pouder, and the Metal will be ſoft.

To make Quick-ſilver malleable.

When you have hardened your Quick ſilver, break the Metal in ſmall Pieces, and boil it in

sharp Vingear a quarter of an Hour; put to it then a little Sal Armoniack, and digest it ten or twelve Days, so put altogether in a luted Crucible, and set it in the Fire, till by Degrees it becomes red hot, and cracks little and little, then hang the *Mercury* in a Pot, with Brimstone at the bottom; lute it well up, so set it in the Fire, that it may grow hot by Degrees, and receive the Fume of the Sulphur. Do this for a Month once a Day, and the *Mercury* will run, and endure the Hammer upon any Occasion

Now to harden Quick-silver fit for this Work, cast Lead, separated from its Dross, into a Vessel, and when it cools, thrust in a pointed Stick, which soon take out again, and then cast in the Quick silver, and it will congeal; then beat it in a Mortar, doing so often, and being so hard, melt it often, and put it into fair Water, and so it will be fixed for your Use.

To tinge Silver of a Gold Colour.

To do this, take fine Gold and Silver, good Brass and Copper, calcined with Live Sulphur, of each a like quantity, and it will appear to be Gold of eighteen Carets fine.

To tinge Iron of a Brass Colour.

To do this, melt Iron in a Crucible, casting on it Sulphur *vive*; then cast it into small Rods, and beat it into Pieces, for by this Means it will be very brittle, so put it in *Aqua fortis*, dissolve it, and evaporate the *Menstruum*, then with

a

a strong Fire reduce the Pouder into a Body again, and it will be of a good Brass Colour, scarcely discernable from that made of Copper.

To make Iron a Gold Colour.

Take the Pouder of Alom of *Melancy*, and Sea-Water, mix them till the Pouder is well dissolved, then heat a Bar of Iron red hot, and often quench it in this, and it will produce a Golden Tincture.

To make Iron a Silver Colour.

Take Sal-Armoniack in Pouder, and mix it with unslacked Lime; put them in cold Water, let them dissolve there, then heat the Iron, and being when red hot, quenched therein, it will be as white as Silver.

To soften Steel, the better to engrave on, &c.

Do this with a *Lixivium* of Oak, Ash, and unslacked Lime, by casting the Steel into it, where it must remain about fourteen Days. Now to harden it again, when the Work you design is done upon it, quench it six or seven times in the Blood of a Hog, mixed with Goose-Grease; at each time, before you dip it again, dry it at the Fire, and it will be very hard, but not brittle.

To tinge Lead of a Gold Colour.

Take Lead that is well purged from the Dross, one Pound, an Ounce of well poudered Sal-

Armoniack, half an Ounce of Salt-Petre, and two Drams of Sal-Elbrot, put them into a Crucible two Days, in a gentle Fire, and the Lead will be thoroughly tinged.

To make Tin that it will not crack.

Take Honey and Salt, of each a like quantity when they are mixed, melt your Tin, and throw it when melted, about twelve Times into it, and ſo it will purge and leave cracking.

If the Tin thus uſed be put into a luted Crucible, and calcined twenty four Hours, it will prove like Calx of Gold.

A Pouder to make all Metal ſoft.

Take a quarter of a Pound of Antimony, *Axinaginum, Vitel*, and Salt, each a like quantity; make theſe into a Pouder, melt this Pouder with the Metal, and it will effect your Deſire.

To make Metal melt with Speed.

Put your Metal into a Crucible, with layings of Brimſtone, Salt-Petre, and Saw-Duſt, and theſe taking Fire in a good Heat, will ſoon cauſe the Metal to run, and ſave you much Labour.

To put a good Temper on any Edge-Tools.

When you have made your Edge Tools of hard Metal, heat them red hot in the Fire, and dip them in cold Water, wherein Soap has been diſſolved; after that, hold them on hot Coals,

Coals till the Edges begin to wax yellowish, then drop Tallow on them, and dip them in cold Water, and the Temper will be fitted very excellent for Use.

To Solder upon Silver, Brass, or Iron.

For soft Solder, that runs soonest, take Brass four Penny Weight, Silver five Penny Weight, melt and mix them well together.

To separate Silver from other Metal.

Melt a Piece in a Crucible, and cast in some Sulphur, and when the Sulphur is consumed, it will carry away in its Fumes the greater part of the Dross, and that which continues will easily be separated from the Silver, which will remain entire.

To gild Iron, &c. a curious tinge.

Take three Pints of Spring Water, two Ounces of Roch Alom, an Ounce of Roman Vitriol, two Ounces of Verdegrease, four Ounces of Sal-Gem, two Ounces of Orpiment; let them boil well, and then add some Salt-Petre and Tartar; let these boil up again, then take them off, and the Metal being very warm, rub it well with this Liquor, and it will set a curious Burnish on it.

To dissolve Gold upon ones Hand.

To do this, distil the Blood of a Deer newly killed, in *Balneo Mariæ*, soak the Gold upon

the Lees three time, and the third time it will diſſolve into little Particles.

To make Copper very ſoft.

Melt burnt Braſs with Storax, in a Crucible, quench it with Linſeed-Oil, ſo beat it on an Anvil moderately, and boil it again, quench it as before and ſo do five or ſix times, and when it is ſufficiently ſoftned, run it with Copper, and it will make it as pliable as Lead.

To make Iron or Silver a Braſs Colour.

Take Flowers of Braſs, Vitriol, and Sal-Armoniack, of each a like quantity, beat them into fine Pouder, and let them ſeeth about half an Hour in ſtrong Vinegar, then take off the Veſſel, puting in Iron or Silver, and covering it, and when it is cold, take out the Metal, and it will appear like fine Braſs, and fit to be gilded.

To colour and ſoften Gold.

Diſſolve Verdigreaſe in Vinegar, and ſtrain it through a Felt, then congeal, and when it begins to wax thick, put to it Sal-Armoniack, and let it harden a conſiderable time, ſo melt the Gold with it, and it will not only heighten the Colour, but render it ſoft, and very pliable.

CHAP.

CHAP. IX.

A Miscellany or Mixture of Curiosities: Being rare Secrets, known but to a few, and highly profitable and pleasant.

To whiten natural Pearl.

TO do this, take half an Ounce of Bean-Flour, Lime, and Eggs beaten together an Ounce, Water of confound, Alcohol of Wine, distil these, and put the discoloured Pearls into the distilled Water, and they will be a curious Silver White.

To make Horn like Tortois Shell.

Take a Dram of the Litharge of Gold, half an Ounce of quick Lime, mingle these well together, and make them into a Paste with White-Wine, and of this Composition make Layings on the Horn, that is thin on both sides being very clear and dry, take it off after five or six Hours; add Tripoli, and a little Salad-Oil to it, and when that has lain as long, rub it off with a Linen Cloth, and polish it and the Places where this has lain will be discoloured like Tortois.

To make a Walnut Grain on white Wood.

Thinly spread on it seven or eight Lays of strong Glew, one after another, each being first dried, and it will become shining; then wet a

wooden Brush in common Water, or a fine Pencil, and form your Knots and other Stroaks in the last Glew, whilst it is warm; then strike hard on it with a wooden Brush, so lay another laying of Glew, and finely polish it.

To cement broken Glass, a curious way.

Take Glare of Eggs, mixed with quick Lime, burnt Flint, that is Flint calcined to Pouder, and Eggshells the same, with these and Gum Sandarack make a Glew or Cement, and anoint the broken Edges of the Glass with it warm, as thin as may be; place the other Pieces right and even on it, and set it to cool, then let it lie in Water an Hour; take off the superfluous Glew, and the Glass will be as firm and strong as ever, and the Cracks not be discerned, but with great Difficulty, by a very clear Light.

To make Sashes for Windows, as clear as Glass.

Take Vellom, thin Parchment, or the finest white Paper, as smooth on both sides as may be, and being wet and stretched, put it on the Sashes, as strait as you can without tearing, then let it gently dry in the Shade, so take two Parts of Nut-Oil, or Linseed-Oil, two Parts of fair Water, and a little white Glass beaten to fine Pouder, boil them in a Glass Body, in Sand, set on a Tile, pretty near the Fire, till the Water be consumed, then mix and strain it, and lay it on with a fine Pencil, lay it on very thin, but

but ſo that it may well ſoak through the Saſhes, and equal all over, and ſo they will be exceeding tranſparent.

To ſoften and diſſolve Horn, or Tortois.

Make a Lee of the Aſhes of burnt Bean Pods, ſtrong Vinegar, quick Lime and Tartar, put in the Horn in thin Pieces, and in four or five Hours the Horn will run to Gelly, or be ſo ſoft, that you may work it into what Form you pleaſe with little Labour. The like almoſt may be done with Tortois-Shell, but it will not gelly; however, it will be ſo ſoft, that it may in a manner be moulded, like Wax, and very pliable to make ſmall Boxes, or Caſes for Watches, and other things.

To ſoften Ivory, a curious Way.

Boil a good handful of Sage-Leaves, in thrice diſtilled Vinegar, put in a little quick Lime, and boil the Ivory in it, and it will grow ſoft and tough, and not break, but with great Difficulty, when it is worked in the fineſt Comb-Teeth, or other fine Works.

To take Spots out of Ivory, and whiten it, a new Way.

To do this, lay the Ivory in quick Lime, and pour firſt a ſprinkling of Vinegar, and then Water, but not too much, that the Heat may not be too great to make it ſcale or grow brittle, and when it has lain twenty four Hours, take it

it out, wash it with White-Wine, rub and polish it, and it will be marvellous White.

To melt Amber for divers Uses.

Take Amber, that is not brittle, put in Pieces, in Juice of Citron, or strong Vinegar, so that it may swim about an Inch or two in the Vessel you put it into, and so set it over a gentle Fire, and let it heat and simper till it boil up then see when the Amber grows soft, or dissolves, and put it to the Uses design'd.

To make Artificial Ambergrease.

Take Florence, Orris Roots, and white Starch, of each an Ounce, Asphaltum, or Bitumen, half an Ounce, Benjamin an Ounce, Sperma Ceti an Ounce, Ben-Nuts an Ounce, Musk a Dram, Gum-Tragacanth. as much as will bind it close together, when well incorporated to make up.

To work these, observe, that in the first Place you make a Paste of the Benjamin, Starch, and Sperma-Ceti; this done, take one part, and make up half the Asphaltum; the other part make into a black Paste, with all the Ingredients, then join and temper them well with your Hand.

To make Light for Lamps, that will not smoak.

To do this distil a Quart of good Olive-Oil, and make the Wick of Talk, or Stone-Alom,

Alom, like other Wicks, which is to be done by steeping them well in Water, and they will spin out; and to make the Oil rise, make a great many little Holes with a small Awl or Needle, in the Wick, and it will give a bright and curious steady Light, without smoaking.

To make a Candle, not to be put out by any Wind.

To do this, fill a small pliable Reed, or Wheat-Straw, with natural live Sulphur, wrap it about with fine small Lint, or Cotten, cover it with Wax, and make it in the Form of a Candle; and then, if the Wind happen to blow it out, the Snuff touching the Sulphur, will immediately light again to great Admiration.

To hinder any Oil that is to burn from smoaking.

To bring this about, distil the Juice of Onions, and put a little of it at the bottom of the Lamp, or whatever you burn it in, and the Oil swimming on the top, the strength of the distilled Liquor underneath penetrating it, will hinder it from smoaking, and make it burn the brighter.

To put a curious White on Alabaster, and white Marble.

To do this, beat Pumice Stone into fine Pouder, and for twelve Hours, or thereabouts, infuse it in Verjuice; then dip a Sponge in it, and

and rub the Stone well with it pretty warm, then wash it with a Woollen-Cloth, dipped in fair Water, and so dry it with another Woollen Cloth, and polish it, and it will be an admirable shining White.

To make shining Japan, or China-*Ink.*

Take an Ounce of Lamp Black, two Drams of Indico, half a Dram of Peach Black, one Dram of black Endive burnt; beat them into a fine Pouder, and then with a Moiety of Fig-Leaf-Water, and another part of Milk, and a very little Gum-Arabick, and when they are well mixed, make them up for use; but before you use the Lamp Black in this Work, clarifie it in an Earthen Pipkin to take out the Dross.

To make Yellow Amber White.

This is a rare Secret, and profitable to be put into Practice. To do it, take a Pound of Yellow Amber, and put it into a very strong Cucurbit of Earth; add to it two Pound of Sal Gem, or Bay-Salt, pour upon them the like quantity of clear Spring-Water, or as much as will serve to dissolve the Salt; that being done, pour on some River Water, and boil them all together in an Alembeck for the space of four Hours, without a Neck, and the Amber will be of a delicate white shining Colour, when polished.

To caſt Horn in Moulds like Lead.

Take Aſhes of Wine-Lees, burned and unſlacked Lime, and make a ſtrong Lee, put into it the Scrapings or thin Shavings of Horn, and let them boil till the Horn becomes as Pap, or Jelly, then mix with it ſuch Colours as you would have it repreſent, and caſt it into what Mould or Figure you would have it repreſent, and being cold, it will harden like Glew, and be of an intire Piece, and retain the Colour very well; and thus you may caſt the Figures of Flowers, Beaſts, Birds, or any other thing, in Horn.

To make a Stone that ſhall take Fire, and burn of it ſelf, if you wet it with your Finger.

Take a Load-Stone, that will draw Iron well to it on the one ſide, and put it away on the other ſide; put it into a leaded Pot, put to it four Pound of Pitch, and one Pound of Brimſtone, Lute and Clay well your Pot, and ſet it in a Furnace, giving it a gentle Fire the ſpace of a Day and a Night, augmenting the Fire the ſecond Day, and the third Day more, whilſt the Stone is on Fire, and when it is well burned, cool it again, and cleanſe it, and ſo when at any time you wet it, that Part will appear on Fire, to the Admiration of the Beholders.

CHAP.

CHAP. X.

Instructions how to cast Figures in Wax, Plaister, Paste, Metal, &c. Leaves, Flowers, Medals, and other rare Curiosities, worthy of Note.

How to cast the Figures of various sorts of Animals.

WHen you have the Figure ready to Mould, then Oil it, and take off the hollow Mould in Plaister, after this manner, *viz.*

Having well Oiled it, lay it on Potter's Earth, and make choice of those parts of it you think most convenient to take of, and there make an Edging or Border of the like Earth; this done, cast your Plaister, well tempered, nor too thick nor too thin; that part being well taken, gently lift it up in as few Pieces as you can; repair the Edges, and make little Notches with a Knife, the Edge being oiled, and so put them exactly together again; after this make a Border or Edging of the same Earth, in the Place whence you took the part of your Figure; which done, cast your Plaister as before, and so lift up the Piece to repair it; and puting it in its Place, continue thus till all be done, which well dried, dress the outside of the Mould with a flat smooth Piece of Iron; and when well hardened, mark the Pieces, one after another; let them then leisurely

leiſurely dry, and join, and tie them together with ſmall Cord, and ſo you have a compleat hollow Mould of Plaiſter, which as the Pieces are more or leſs difficult, may accordingly be made of more or leſs Pieces, from three to twelve, *&c.*

How to caſt a hollow Figure, &c.

Supple the inſide of your Mould of Paſte, till no more Oil will be taken in; then with Cotton Wool dry it, and tie all the Pieces together with ſmall Cord; then ſeek a convenient Mouth or caſting Place, and ſo melt your Wax, made tough with a little fine Turpentine, and when it is neither too hot nor too cold, run it into the Mould; if your Figure be but little, fill it, and after a ſmall time take out the Stople of the Mouth, and ſuddenly turn the Figure upſide down, that the remaining Wax may run out; and when you perceive it is ſufficiently cold, open it, and you will have a hollow Wax figure If you find it too thin, let the next remain longer in the Mould; if too thick, pour out what remains ſooner, and theſe Figures, when repaired and poliſhed, you may paint to any lively Colour.

How to put an inward Mould or Kernel into any Waxen Figure, &c.

If your Figure be of a living Creature, with a moderately hot Knife divide it into two parts lengthways or overthwart; then take Potter's Earth, mixed with a little fine Charcoal.

coal-Duſt, moiſtening and beating them with a little Iron Rod, till as well incorporated, and as ſoft as Paſte, and with this Paſte fill the inſide of the Waxen Figure, which dry, cover the outſide of each Piece where they are to be joined with the like Earth, very thin and moiſt, but beware it run not over upon the Edges of the Wax, and having joined it, repair it with a thin Piece of Copper or Iron warm upon the Joint; then make a Git or caſting Hole in the moſt convenient Place, and let it be long enough, with Breath Holes. If you conceive any part of the Figure, to which the Metal will not eaſily paſs, then rowl up little Pieces of Wax, about the thickneſs of a Gooſe Quill, or according to the Size of the Figure, which with a heated Inſtrument ſtick to ſome part of it, that the end may reach the Place ſuſpected, where the Metal will not eaſily run, and there faſten it; then take little Tags, or Iron, about that bigneſs, about half a Finger long, proportionable to the thickneſs of the Wax of the Innermoſt Mould, and thruſt theſe quite through the Figure, to the purpoſe that the Kernel being in all Parts ſupported, it may not touch or join to any part of the outward Mould.

To make the Cases or Facing, &c.

Take Founders Earth, very fine, and steep it in a Vessel of Earth, filled with fair Water, and by Inclination pour it into another, that the drossy part may remain behind; then add to it some Bone, mix them well together, and with a large Pencil give a smooth Laying of the Earth on the Waxen Figure; dry it, and do so six times, and when it has had the last drying, strengthen it with Potter's Clay, well mixed, and beaten with Hair, and that being dry, put your Mould over the Fire, on Iron Rods, in Form of a Gridiron; but beware the Wax boil not within the Mould, least it break it; lean it then on one side, that the Wax may all run clean out at the casting Mouth; then heat your Figure over a gentle Fire, till it be well hardened, and melt the Metal you intend to cast the Figure into a good Heat, and have two Crucibles in the Fire, one empty to pour the Metal into, that the Dross and Scum may not remain in it, and when it is at a proper Heat, set the Mould fast in Sand, pour in the Metal, and let it thoroughly cool; so by breaking your Mould you will have a perfect Figure, without Seam; but if the Figure be large, you must bind the Mould with nealed Wire, least the Weight strain and flaw it.

To caſt Medals very lively.

To do this, calcine Speculum or Spaud in a Crucible, then put it into a Veſſel of Earth, and pour Water on it, and when you have well ſtirred it, add as much more Water and being ſettled, take it out, and make it into Balls, then a ſecond time calcine it, and beat it into Pouder, aſperſe ſome Vinegar on it, and by that means make it into a Paſte, then a third time calcine it, and when cold, beat it to Pouder, and ſearſe it very fine, adding an Ounce of Sal Armoniack, diſſolved in Water, to twelve Ounces of Speculum; keep it then in a Cellar, and with it make your Moulds, or otherways frame your Medals of it, moiſtening it; alſo with Crocus Martis, or Saffron of Iron, may be made another Spaud, in which you may caſt the fineſt Hair imaginable.

To caſt Lawrel-Branches, Flowers, Vine-Leaves, and the like curious things.

To do this, make a Circle of Earth, like a Box to the bigneſs of the thing you intend to caſt, and imitate ſuch Branches, Leaves, or Flowers, as are of a good Subſtance, for if too thin, the Metal will not, without great Difficulty, run; and when you have choſe what you deſign, run a Needle, with a Thread, at the end of the Stalk of the Flower or Leaf, and ſo through the middle of it, faſtening one end of the Thread to the bottom of the Circle, and the other to a Stick that is to ſupport over-

overagainſt it in a Perpendicular Line, that your Flower or Leat touch not the ſides of the Circle; but before you faſten either, put a little Piece of Wax at the end of the Stalk for a Gib-hole, which muſt touch the bottom where the thread was faſtened Having done this, caſt a Compoſition of Plaiſter of Brick, and Plume, with Sal Armoniack-Water; and when it is well mixed, very fine and dry, bake it till the Flower be wholly conſumed that it encompaſſes, and has taken the Impreſſion off and being almoſt cold, run into it Tin Silver, or other Metal; if Tin, you may put a third part Lead, or if Silver, a little Copper and you will find the Leaves or Flowers very curiouſly taken in the Metal; take them out by little and little, breaking off the Mould; and after this manner may you caſt all Reptiles or Creeping Things.

To mould off Figures in Paſte.

Take the Crumb of a new drawn white Loaf, mould it till it becomes cloſe as Wax, and very pliable, then bear it, and rub it with a Rowling Pin, as fine and far as it will go, then print it in the Moulds, and when it has taken the fairaſt Figure you deſire, dry it in a Stove, and it will be very hard; and to preſerve this from Vermine, you may mix a little Pouder of Aloes with it.

To mould small Figures of Jasper Colour.

Oil your Moulds with a fine Pencil, and diversifie them with such Colours as you please, with Gum Tragacanth; if they spread or run, put a little of the Gall of an Ox, for the thicker the harder it will prove; then mould your Paste of the Colour of Jasper, or the like; put it in to fill the Mould, tie it with a Wire, and take it out, repair and varnish it, and set it to harden.

FINIS.

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